Vol. VIII SEPTEMBER, 1918 No. 9

AMERICAN JOURNAL OF PUBLIC HEALTH

THE JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

GENERAL LIBRARY
SEP 28 1918
UNIV. OF MICH.

THIS ISSUE CONTAINS ON PAGE 704 THE

PRELIMINARY PROGRAM

OF THE

ANNUAL MEETING

TO BE HELD

October 14-17, 1918
Chicago, Illinois

PUBLISHED MONTHLY AT
70 DEPOT STREET, CONCORD, N. H.
EDITORIAL OFFICE, 126 MASSACHUSETTS AVE.
BOSTON, MASS.
Entered as Second Class Matter at the Post Office at Concord, N. H.

AMERICAN PUBLIC HEALTH ASSOCIATION ANNUAL MEETING, CHICAGO, ILLINOIS, OCTOBER 14-17, 1918

NATIONAL AUTOCLAVE

Perfect Sterilization

Low Price

No. 255, National Autoclave. STERILIZES perfectly as a circulating device, insures a uniform distribution of hot, dry steam under any required pressure.

LOW PRICE because they are made in very large quantities and of steel instead of copper.

DURABLE because they are made of heavy steel boiler plate and heavy castings and contain no delicate parts.

Supplied with gas or gasoline burner or steam coil at the same price.

Where combination of steam and gas or gasoline is required, $5.00 extra.

No. 255-A	1350 cu. in.	$ 60.00
No. 255-B	2475 cu. in.	85.00
No. 255-C	7620 cu. in.	145.00

SCIENTIFIC MATERIALS COMPANY

711-719 FORBES ST., PITTSBURGH, PA.

"Everything for the Laboratory"

American Journal of Public Health

Official Monthly Publication of the American Public Health Association

126 Massachusetts Ave., Boston, Mass.

SEPTEMBER, 1918 CONTENTS Vol. VIII No. 9

PAGE

Venereal Diseases—The Program of the War Department Against Venereal Disease 639
Wm. F. Snow, M. D., and W. A. Sawyer, M. D.

Protection Against Food Contamination 644
Carl E. McCombs, M. D.

Ice Cream Epidemics and Model Regulation for Control 651
H. W. Hamilton.

Feeblemindedness and Social Environment 656
Peter H. Bryce, M. D.

A Bacterial Examination of Green Vegetables 660
Fred William Kurk.

The Public Health Instructor—A New Type of Health Worker 662
E. V. Brumbaugh, M. D.

Some Public Health Lessons of the War 664
Ernest C. Levy, M. D.

A Bibliography of Field Water Supply 668
Jack J. Hinman, Jr.

Charts and Maps as Used by Health Officers 674
Gardner T. Swarts, Jr.

Transport Sanitation 690
Major Charles W. Berry.

The Child's Ten Commandments to Parents 695
C. E. Turner.

Editorials—Science and Efficiency 696
Infant Hygiene in War-Time 697
Why Your October Journal will be late 698

The Sanitation and Socialization of the Western Provinces of Canada 699

In Memoriam of Dr. Emmanuel P. Lachapelle 701

NOTES SECTION

ASSOCIATION NEWS.—Dr. Frankel Addresses National Fraternal Congress, 702; Popular Health Journal, 702; Help Wanted, 702; Members Elected, 703; Report on Industrial Morbidity Statistics, 703.

PRELIMINARY PROGRAMS OF ANNUAL MEETING OF A. P. H. A., 704.

Continued on page VII

FOOD DRINK

FOR ALL AGES

Horlick's

the Original

Malted Milk

A dependable solution to the safe milk problem as it affects children. A complete food upon which INFANTS show normal gain. Constant in composition, secure from contamination, unimpaired in vitamine content.

Easily assimilated and nutritious as a food-drink for nursing mothers, convalescents and the aged. Physicians sample and printed matter prepaid upon request.

Horlick's Malted Milk Co.

Racine, Wisconsin

SEPTEMBER, 1918

CONTENTS

Vol. VIII, No. 9

Continued from page V

NOTES SECTIONS

PUBLIC HEALTH NOTES.—Illinois, 724; California, 724; Kansas, 724; Louisiana, 724; Maine, 725; Massachusetts, 726; New Hampshire, 726; New York State, 726; New York City, 728; North Carolina, 728; Ohio, 728; Death of Dr. J. H. Landis, 729; Wisconsin, 729; Volunteer Medical Service Corps, 730; Preventing Malaria Around Camp Bowie, 731; Immunication Against Diphtheria, 731; General Instructions for Hay-Fever Subjects, 731; Courses in Public Health Nursing, 732; Federal Social Hygiene Work, 732; Sanitarians and the New Draft, 732; Venereal Disease Control, 732; Occupational Treatment of Tuberculosis, 733; The Pennsylvania School for Social Service, 733; Illinois Tuberculosis Survey Plan, 733; Necessity for Conserving Child Life, 733.

BOOKS AND REPORTS REVIEWED.—Alcohol: Its Action on the Human Organism, 734; Sixth Annual Report of the International Association of Dairy and Milk Inspectors, 734; Standards of the Department of Health and Sanitation of the United States Shipping Board Emergency Fleet Corporation (Doane), 734.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASES.—Present Status of Our Knowledge of Fatigue Products, 735; Women Munition Workers in France, 735; Injurious Substitutes for Turpentine in the Painting Trade, 736; The Problem of the Married Women in Industry, 736.

PUBLIC HEALTH LABORATORY NOTES.—The Preservation of Typhoid and Paratyphoid Bacilli in Stools by Emulsifying in Glycerine, 737; The Classification of Hemolytic Streptococci, 737; Antiseptic Value of Some Essential Oils, 737; Cobra Venom Reaction in Diagnosis of Cancer, 737; Preparation of U. S. Army Triple Typhoid Vaccine, 737; Normal Beef Serum in Treatment of Anthrax, 738; Potency of Antimeningococcic Serum, 738; A New Method of Preparing Gonococcus Antigen, 738; The Loss of Complementing Power in Kept Serum, 738; Micro- and Macro-Methods of Cultivating Anaerobic Organisms, 738; Simple Method of Collecting Blood for the Wassermann Reaction, 738; New and Simple Ultra-Filters, 739; Method for Staining the Diphtheria Bacillus, 739; Examination of Sputum for Albumin in Tuberculosis and Bronchitis, 739; "Hormone" Medium as a Substitute for Serum Medium, 739; The Influence of Incubation on the Wassermann Reaction, 739; Method of Isolating B. Botulinus, 740; Intrarectal Administration of Arsphenamin, 740; Comparison of Wassermann and Bruck Reactions, 740; Tuberculosis and the Wassermann Reaction, 740; Medium for the Influenza Bacillus, 740; Medium for Cultivation of Meningococcus, 740.

Think of It!

A director of the American Public Health Association wrote me last week: "A letter to our members to increase annual meeting attendance wouldn't bring back its postage." Think of it!

Let's show him how badly mistaken he is about loyalty. Fill out, tear off, and send this slip to:

SECRETARY, AMERICAN PUBLIC HEALTH ASSOCIATION,
126 Massachusetts Ave., Boston, Mass.

I nominate for membership
I will invite to the Annual Meeting
I want you to invite to the Annual Meeting
} (Please specify which)

Name.....

Address.....

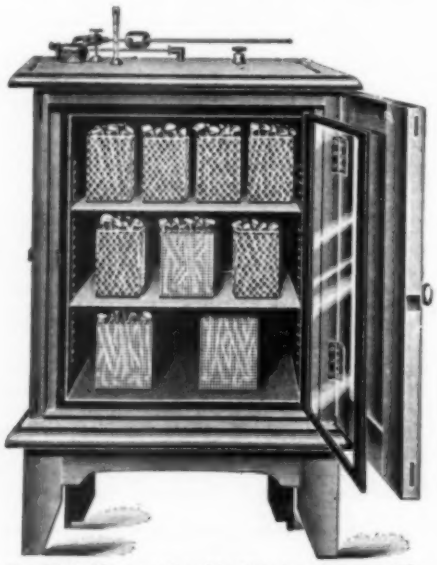
(Date) (Signed)

(Please write your address)

HEARSON INCUBATORS

WITH HEARSON PATENT CAPSULE TEMPERATURE CONTROL FOR GAS, OIL AND ELECTRIC HEATING

A large stock has just been received, all of which is available for immediate shipment



No. 20740 Hearson Gas Heating Incubator, with inside dimensions 15x15x18 inches. Price $120.60

We have supplied several hundred Hearson Incubators to important U. S., State, City and Hospital bacteriological laboratories throughout the U. S. Their performance has been universally satisfactory, and in view of this experience we are willing to recommend the Hearson patent capsule temperature control as being the most accurate and simple device for the uniform control of incubator temperature now on the market.

We supply them in nine sizes for gas heating, six sizes for oil heating, six sizes for electric heating and eight sizes for low temperatures, and keep a stock on hand of the more popular sizes for immediate delivery.

Complete descriptive pamphlet sent upon request

ARTHUR H. THOMAS COMPANY

IMPORTERS - DEALERS - EXPORTERS

LABORARORY APPARATUS AND REAGENTS

WEST WASHINGTON SQUARE PHILADELPHIA, U. S. A.

American Journal of Public Health

Official Monthly Publication of the American Public Health Association
126 Massachusetts Ave., Boston, Mass.

Vol. VIII SEPTEMBER, 1918 No. 9

THE PROGRAM OF THE WAR DEPARTMENT AGAINST VENEREAL DISEASE.

WM. F. SNOW,
Lieutenant-Colonel, Medical Corps, U. S. A.
AND
W. A. SAWYER,
Major, Medical Corps, U. S. A.

Read before the Conference of State and Provincial Boards of Health, Washington, D. C., June 5, 1918.

I. LT.-COL. SNOW.

I THINK my part in the discussion of this problem should be simply to introduce Major Sawyer and Doctor McLaughlin by a few remarks. In the development of the present campaign against venereal diseases some of us have played the part of the woodsman who is sent out into the mountains to mark a roadway. He goes over the mountain and, so far as he can, follows a straight course. In later years when the road begins to be extensively used, a surveyor follows the trail blazed out and says, "What a miserable trail! Why didn't he follow along the stream? With only a little blazing here and there he could have made almost a straight course." In defense of the fellow who went first it may be said that he could not see the stream all the time, or it looked to him at times as if the river made a big bend and it would be shorter to climb the mountain side.

The surveys have now been made and the scientific building has begun in earnest. Since the advent of war last year we have seen more progress than in the last thirty years, during which people have steadily made efforts in this direction with increasing confidence in ultimately achieving success. So far as the government is concerned, its work has all been directed along three or four major lines. When I say the government I mean all of the departments of the government, because this is a problem which cannot be handled by any one department. The army has, of course, distinctly the largest problem because it has so many hundred thousands of our men under its control. The navy has a corresponding proportionate responsibility. The Public Health Service has the responsibility for the civilian industrial population. The American Red Cross has come forward in a splendid way to coöperate with these several agencies. The United States Bureau of Education is trying to reach boys graduating from the high schools who will be in the next draft. The United States Children's Bureau is going back into the

homes in a most effective way, making plans to reach the children who are now growing up to be the next generation of men and women who will rule this country. All these are just an extension of lines of coöperation, so that when we speak of the government we ought to include all these agencies.

The outstanding features of the practical problem which is presented to us are, first, the detecting of cases, second, the treatment of those infected. Besides providing facilities for treatment for those already infected, the government feels we ought to do all we can to educate and aid those who are not infected to protect themselves.

That brings us to the educational factor and all its ramifications. In every other communicable disease, there are certain difficulties attendant upon an individual's applying the knowledge he has of protection from disease. None of us, for instance, who are susceptible to bubonic plague, can protect ourselves if we don't know that bubonic plague is in the city and we are being exposed. And even if we do know that fact, we cannot do a great deal to protect ourselves unless the health authorities and the collaborating agencies do something to aid us in the control of disease.

In venereal diseases we have essentially the same problem and are finding, as we deal with the venereal diseases from an epidemiological point of view, that public opinion is with us. The controversy between medicine and morals is not really controversial if we look at it squarely. It

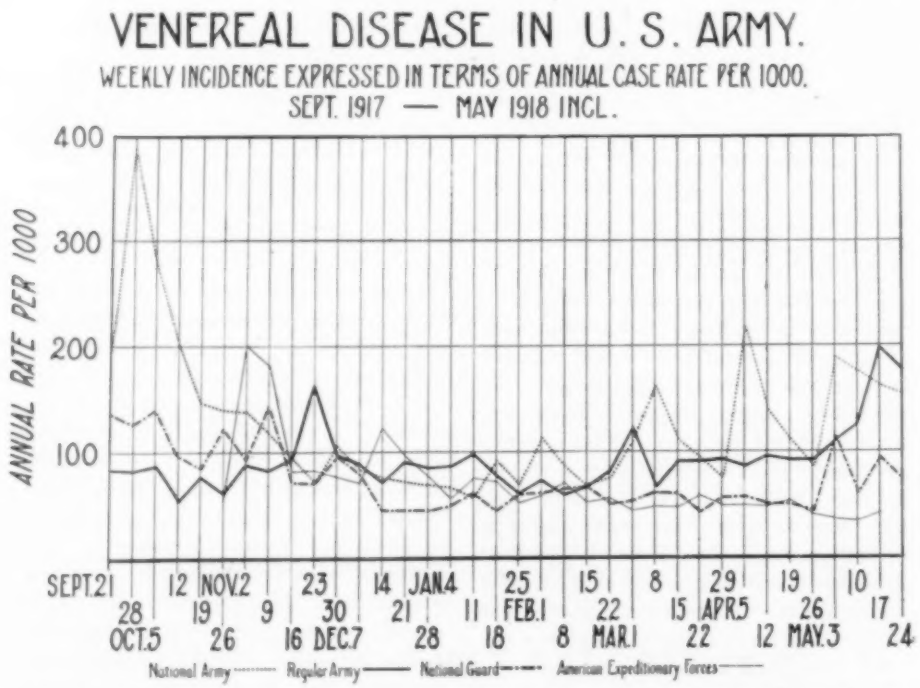


CHART 1. Annual venereal disease rates per thousand men in the National Army, Regular Army, and the National Guard, and Expeditionary Forces by weeks for the period from September 21, 1917, to May 24, 1918, incl.

is simply a question of utilizing a new type of public health machinery. Instead of using the sanitary engineer to drain a swamp as we do in malaria, we have to use the lawyer and the social worker in controlling liquor and prostitution and other evils. The analogy is scientific enough and the public is beginning to see it.

II. Major Sawyer.

MAJOR SNOW has spoken of the principles underlying venereal disease control. I shall exhibit a few charts which show the extent of the venereal disease problem in the army and which point out where, from the viewpoint of the army, the greatest emphasis should be placed in the control of these diseases.

The first chart shows the amount of venereal disease in the National Army, the National Guard, the Regular Army, and the American Expeditionary Forces from September, 1917, up to the present.

CHART 2. Comparison of the annual rates per thousand men for all troops in the United States between September 21, 1917, and May 31, 1918, of certain of the more important communicable diseases.

This chart gives an idea of the magnitude of the problem with which the army is dealing. It does not show how much venereal disease is being contracted by the soldiers, nor the exact percentage of the men having venereal disease at the time of admission to the army. The fluctuations vary principally with the number of new men admitted to the army, and therefore cannot be used to measure the success of preventive measures in or around the camps. The high points of the curves coincide with the large increments of drafted men.

In interpreting the curves it should be kept in mind that the figures represent the annual rate per thousand men figured for the given week. The annual rate must be divided by fifty-two to find the actual number of cases per thousand men reported for the first time during any week in question.

The second chart shows the incidence of venereal disease in the army, as compared to other important communicable diseases. As General Gorgas has said, venereal diseases present the greatest communicable disease problem of the war. They are the greatest single cause of disability in the army.

The third chart shows the amount of

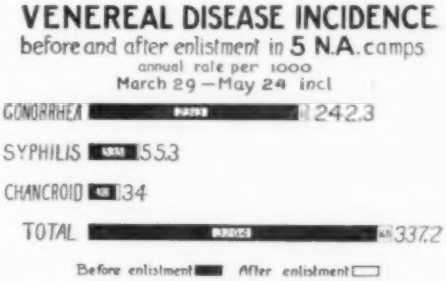


CHART 3. Annual rates per thousand men, before and after enlistment, in five National Army Camps, Dix, Lee, Upton, Meade, and Pike, for gonorrhea, syphilis, chancroid, and total venereal disease, based on 37 special weekly reports from March 29th to May 24th incl.

venereal disease contracted after enlistment in five National Army camps, contrasted with the total amount. Figures for the whole army are not now available, and would probably not show quite so marked a contrast.

In these five camps there were about nineteen times as many cases contracted before enlistment as afterward. It is, therefore, the disease contracted by civilians before enlistment, under civil conditions, which is reponsible for the disability due to venereal disease in the army. To reduce the small amount of venereal disease contracted after enlistment is the problem of the army. To cut down the vast amount brought in from civilian life is the problem before the state and local health officers throughout the United States. There is no greater or more urgent health problem before them today. To solve the whole problem, the army and the health officers will need to exercise the closest coöperation.

At the beginning of the war it was expected that conditions around the camps would become serious. The War Department Commission on Training Camp Activities was organized to prevent this, and it has received splendid coöperation from most communities. The activities of the commission have been a large factor in the low amount of venereal disease contracted after enlistment. For carrying on the work of preventing venereal disease through the enforcement of laws against liquor and prostitution, there has been organized a law enforcement division of the commission. This division has had assigned to it a corps of twenty-six officers of the Sanitary Corps of the army. They assist in the enforcement of Federal, state, and municipal laws against vice and liquor, with much emphasis on the repression of prostitution. This work, and the educational work carried on among the soldiers by the commission and the medical officers of the army, strike at the source of venereal disease and have proven highly effective in those communities in which intensive work has been carried on owing to their special importance to the army. State and local health officials will have to take the lead in venereal disease control throughout the length and breadth of the nation, if big results are to be obtained and if the disability in the future drafts is to be materially reduced. The nation cannot afford to hand over to the army such a great burden of venereal disease arising needlessly in the civilian population.

Taking the country as a whole, very little can be done in venereal disease control except through the state and municipal officials, particularly the health officials. I am glad to say that the army's request for public health control of venereal diseases is getting a wonderful response from state and municipal health officials. When the Surgeon-General informed health officials of what was needed, the great majority were willing to assist to the fullest extent within the limits of their power.

The state boards of health are putting the control of syphilis and gonorrhea on a sound public health basis. In thirty-four states and one territory venereal diseases must be reported. In eight states the report is by name; in the remainder by physicians' office number. In twenty-three states and one territory these diseases are required to be quarantined when necessary to protect the public health. In eleven states separate bureaus of venereal disease have been established. In fourteen states and one territory, in which venereal diseases are required to be reported by office number, the name of the patient must be reported if he fails to continue treatment or to observe precautions to prevent spreading disease.

The quarantine of the venereal disease patient when necessary to protect the public health has proven practical and has doubtless already prevented many infec-

tions. Quarantine of all cases is not necessary and is distinctly impractical. The method which is becoming generally accepted is similar to that which has been advocated for tuberculosis, another chronic communicable disease. The incorrigible and dangerous patient is quarantined under proper treatment in a hospital, and kept from exposing others. In the control of venereal diseases, the method is more important than in the prevention of tuberculosis. The provisions for quarantine are the teeth in the venereal disease statutes and regulations.

Venereal disease control should be kept a matter of public health administration free from unnecessary court procedure.

The establishment of separate bureaus of venereal diseases by state boards of health puts these diseases in a class with tuberculosis, as far as special recognition is concerned. Venereal diseases as a group are more destructive and preventable than tuberculosis, and it is therefore right that they should receive attention from a special staff with special funds.

I have heard it said that we should be able to reduce venereal diseases by fifty per cent in a few years if the present program can become general and be efficiently administered. I believe it is true, and that further reductions can be made in subsequent years, until syphilis and gonorrhea have reached an incidence as low as that of typhoid fever at the present time, or even lower. We know as much about venereal diseases as about the other preventable diseases. The laboratory part of the plan is well worked out. The methods of control are being successfully carried on in extra-cantonment areas. Why not in the rest of the country?

We have been dropping silver nitrate into the eyes of the babe to prevent gonorrheal ophthalmia, but we have been doing almost nothing to prevent the father or mother from contracting the original infection and bringing it into the home. It is only since the war began that we have considered relative values of the methods of controlling venereal diseases, and have recognized that we must get at the large sources and use law enforcement and educational measures to reduce prostitution and make the transfer of infection much less frequent.

The success or failure of venereal disease control depends on the vision and energy of the health officer.

Bacillus Influenzæ Absent in Present Pandemic.—The world is being visited with a rapidly spreading disease that resembles influenza. Captains T. R. Little, C. J. Garofalo, and P. A. Williams of the Canadian Mobile Laboratory No. 1 have investigated numerous cases among the troops, both clinically, bacteriologically, and by the use of other laboratory tests. They find that the disease resembles influenza clinically with certain differences however. The symptoms are sudden chills, severe headache, pain in cervical, dorsal and lumbar regions, pain in limbs and general malaise. Fever occurs and soon reaches its maximum. The fever generally varies from 990 to 1020. After the second day, there is an abrupt crisis, and at the end of the fourth day the patient is normal again. The course of the disease is shorter than in influenza, and the gastro-intestinal symptoms are slighter.

Samples of the exudates from the upper air passages were examined as smears, and by the cultural method. A small, Gram positive diplococcus was found in large numbers. The Bacillus influenzæ was always absent. The organism was grown on legumin serum agar and was unable to ferment dextrose, levulose, maltose, lactose, saccharose or mannite. It had a slight tendency to anærobic growth.

The disease is not characterized by a sharp leucocytosis or polynucleosis.—*The Lancet*, London, July 13, 1918. (*M. P. H.*)

PROTECTION AGAINST FOOD CONTAMINATION.

CARL E. MCCOMBS, M. D.,
Bureau of Municipal Research, New York City.

TO say that food inspection, other than milk inspection, has not received adequate attention from municipal health authorities, particularly in the smaller cities of this country, is not to reveal a secret. It is generally conceded by those best informed that inspection as a protection against food adulteration or misbranding is of relatively minor importance in the actual prevention of disease, and municipal health authorities whose funds for disease prevention are too often insufficient, are quite justified in curtailing such activities as are not of established health benefit to their communities. There are, however, certain phases of food inspection work which are productive of real and demonstrable health benefits, and as such should be included in the health program wherever possible. Leaving out of consideration, then, food inspection for the prevention of adulteration and misbranding, the health value of which is at least not proven, and milk inspection, the value of which is unquestioned, there remains a considerable field of food inspection work which merits further development. Applying the test of prevention of disease to activities in this field, we may define several very important procedures which any municipal health officer may carry out at small expense, and the results of which may be readily demonstrated. These procedures are:

1. The physical examination of all food handlers, and the exclusion from food handling of those having communicable diseases, which may be conveyed in food to food consumers.

2. The inspection at slaughter of the carcasses of animals used for food purposes, and the exclusion from sale of such carcasses, or such portions of them as are unfit for human consumption, by reason of disease contamination.

3. The inspection of methods of food handling to prevent the contamination of food with disease organisms, through unclean methods or by unclean workers.

The reason why such procedures have not been properly developed is two fold, namely, inadequacy of appropriations for health work, and the failure of municipal health officers to develop information which will indicate to appropriating bodies, the need and value of the services mentioned. It is the rule for municipal health officers to lay the blame for inadequate service upon inadequate appropriations,—but it is a fact that appropriations for health work are usually in direct proportion to the aggressiveness of the health officer, and his ability to convince the holders of the purse strings and citizens in general, that greater expenditure will guarantee better health. The health officer who initiates new activities and proves to his community that such activities mean certain benefits, rarely has difficulty in securing support for the extension of his health program. The purpose of this paper is, therefore, to point out how the food inspection services suggested may be organized and developed, so that the municipal health officers may not only provide the service necessary, but also develop information which will convince the citizens of his community that the service is necessary.

As regards the physical examination of food handlers, information is already available to establish the importance of the procedure. In the cities of New York and

Chicago, in the states of Pennsylvania and Indiana, and in the Panama Canal Zone, physical examination of food handlers has demonstrated that there is an actual menace to the public in the handling and preparation of food by persons suffering from communicable diseases. In New York City, where the health department has been making physical examinations of food handlers since 1915, of 1,980 cases intensively examined at its occupational disease clinic, 10 active cases of tuberculosis, 19 active cases of syphilis and 6 active cases of gonorrhea were discovered and excluded from food handling. In addition 15 cases of arrested and suspected tuberculosis and 32 cases of suspected syphilis were discovered and placed under observation for periodic examination. It was found in this study that of 41 cases of active and suspected syphilis, 30 were among waiters. Of 695 waiters examined, one in every 23 either had syphilis or was suspected of having the disease, and one in every 63 had an open case of syphilis. The indicated incidence of syphilis among waiters was $3\frac{1}{2}$ times that among males in all other food handling occupations. The high incidence of syphilis among waiters is, as the report of the New York City health department points out, a matter of serious concern.* Certainly the physical examination of food handlers is indicated as an important part of the municipal health program, and the facts already available are sufficient to support the demands of a health officer for funds with which to provide such examinations. The fact is, however, that little attempt has been made by municipal health authorities to carry out the necessary procedure. In the majority of cities, the municipal health officer learns of the existence of communicable diseases only through the reports of physicians or others, but since in many cities tuberculosis and typhoid fever are badly reported, and syphilis and gonorrhea not reported at all, his sources of information regarding the incidence among food handlers of these readily transmissible diseases are far from complete.

In the smaller cities, a beginning at least in the physical examination of food handlers can be made without great expense. First, of course, a law is needed which will require that food handlers in certain employments shall not be employed except on presentation of a certificate of health from the local health authority. This is often a matter of local ordinance or regulation only, because of the broad powers granted local authorities by state health laws for the prevention of communicable diseases. The next step is the devlopement of an organization and procedure for enforcing regulations, and there is no great difficulty here. Almost every municipal health department has one or more competent physicians employed on full or part time, and by proper readjustments of their schedules of work the necessary examining service could be provided. In the beginning, in order to minimize the work requirement, examinations should be made of food handlers by groups, as the waiter group, the cook group, the baker group, etc., and the groups should be examined in the order of their importance. The waiter group should be the first to receive attention, since this group has been found to have a high incidence of communicable disease, particularly venereal disease. As the work is extended, the need for additional workers will be demonstrated, and the health officer should have at the end of six months or a year, sufficient data to give weight to his requests for increased funds for extension of the work if necessary. He would certainly receive the approval of the citizens of the

* See the Health of Food Handlers (Monograph series, Department of Health of the City of New York, August 1917), by Dr. Louis I. Harris, Chief of Division of Industrial Hygiene of the Department of Health, and Louis I. Dublin, Ph. D., Statistician, Metropolitan Life Insurance Company.

community, once they were made cognizant of the facts. If no health dangers were demonstrated by the examinations, the health officer would at least know that he had done his duty and could then turn his attention to other matters.

The inspection at slaughter of animals intended for food purposes, the second item of importance in a program of food inspection for the prevention of disease, is another problem of food inspection service which is neglected or ignored entirely in many cities of the United States. Most large cities have a meat inspection service, socalled, but such meat inspection is ordinarily concerned with the inspection of meat in local markets or shops. Of more than twenty cities in which the author has had an opportunity to observe conditions, and in which meat inspection is not chiefly provided by the Federal authorities, only three are making satisfactory efforts to inspect animals at slaughter. Yet it is certain from the evidence submitted by the Federal meat inspection service, not only that the protection of the public health demands inspection of animals at slaughter, but also that any other method than inspection at slaughter fails to meet the need.

The chief difficulty experienced by municipalities in providing adequate meat inspection service, is in controlling the small slaughter houses, which are usually many, and in the inspection of so-called "farm-killed" animals. To provide a force sufficient to inspect slaughtering at a score or more small abattoirs, scattered throughout the city and its environs, and to inspect the occasional slaughtering for local sale on farms throughout the country, would require an expenditure of money which would perhaps be prohibitive for many cities. The alternative, is then, to reduce the field, so that satisfactory inspection can be performed by a smaller force. The first step in reducing the field is to bring about if possbile the coöperation of operators of small abattoirs, and the consolidation of many abattoirs into a few for which a competent inspection service may be provided. In this connection, the decision of the United States Supreme Court in the famous "New Orleans Slaughterhouse Cases," which upheld the right of the state or municipality to pass laws requiring the slaughtering of animals within prescribed limits and in certain definite places, is well worth review by municipal health officers. On the basis of this decision, it would be proper for a municipality to prohibit slaughtering except in a prescribed placé or area. Two other courses are open, namely, the enforcement of a regular schedule of hours of slaughtering in the small abattoirs, so that a large number of abattoirs may be supervised by few inspectors, or the establishment of a municipal abattoir.

We shall not attempt in this paper to discuss the merits of the municipal abattoir plan. There is, however, opportunity to improve the efficiency of meat inspection, even when no consolidation of small abattoirs can be brought about, or where the establishment of a municipal abattoir is not practicable for one reason or another, by regulating the days and hours of slaughtering in small abattoirs so that even a small inspection force will be able to visit all establishments and inspect slaughtering in all. If the days and hours of slaughtering are not so regulated, it is obviously impossible for a small force to control the situation. Slaughterhouse proprietors, if left to their own devices, will slaughter when they feel reasonably certain that an inspector will not be on hand, either very early in the morning or very late at night, when it is difficult for an inspector to be assigned. One middle west city, which has a very satisfactory meat inspection service, has worked out an excellent inspection schedule for approxi-

mately sixty small slaughterhouses supplying local markets. In thirty small slaughterhouses where killing was done three times a week, the hours of slaughtering were so scheduled that an inspector was present at all such times. In addition, there were about twenty-nine slaughterhouses where killing was done only occasionally and the inspector visited these places only on call. The meat inspection force included a chief veterinarian inspector and eight assistants, two of whom were assigned to full time duty in the large abattoirs. The total force therefore available for inspection in the small abattoirs, comprised only seven men, but the work was done very satisfactorily because of the carefulness with which time schedules of slaughtering and the assignments of inspectors were worked out. In smaller cities, the number of slaughterhouses would of course be less and the inspection force required proportionately smaller.

For controlling the inspection of "farm-killed" animals, that is, those slaughtered by individual farmers on their premises, a large western city has adopted a plan which works well, and is one which could be adopted successfully by practically all small cities. A city inspection station is provided, to which all carcasses, not otherwise inspected at the time of slaughtering, are brought for inspection before being sold to local dealers. A veterinarian is stationed at this inspection office and stamps as approved, or condemns all carcasses brought to the office. Since no meat is allowed to be sold in the city unless it bears the stamp of the approved inspection, and a heavy penalty is fixed for violation of the regulation, there is little attempt on the part of the dealers to evade the law.

No matter what plan of control is put into effect, adequate local regulation is necessary in order that no meat shall be sold or offered for sale within the city which does not bear the stamp of the local meat inspection service, the Federal meat inspection service, or some other municipal meat inspection of approved standard. The penalty fixed for violation of this regulation, should be high enough to be a real deterrent and if enforced rigidly will produce results. Any one of the suggested plans of meat inspection can be put into effect in any municipality without great cost. If fees for the inspection of carcasses are required, meat inspection service should be largely self-supporting.

Comment on the necessity for inspection of the cleanliness of employees, utensils and methods in food establishments, the third essential of a food inspection program, should be not necessary—but it is necessary because in so few cities is the matter given intelligent attention. To enforce cleanliness in hundreds of establishments scattered throughout a city is obviously a very difficult task, but not an impossible one if an inspection force is properly directed and an effort made to reduce the field as far as possible. First of all, there must be a proper code of regulations for the guidance of inspectors and these regulations should state specifically what should and what should not be permitted in food establishments. On the basis of such regulations, the approval of the health authority should be required before a license is granted to the establishment (and all food establishments should be licensed). Such approval should be granted only after inspection, and scoring of the establishment by an inspector. If the establishment fails to come up to the minimum standard established, it should not be approved and no license should be granted. The scoring of establishments for approval of licenses and the subsequent scoring of such establishments should be done by the use of a score card, and in devising such a score card careful thought is necessary. The score card should require

the inspector to observe whether or not the minimum essentials of the regulations are observed, by a series of stated questions which should require very definite answers, and a numerical weight should be given to each question, based on the relative importance of the regulation from a public health standpoint. Too often score cards, though filled out by the inspectors with the best intentions in the world, do not give a clear picture of conditions, nor enable the reviewing authority to determine the status of the establishment as complying with or not complying with regulations, because the score card has not been based wholly on the regulations. It is not a good plan to leave the determination of standards to the judgment of the inspector and to permit him to classify the establishment according to his opinion as "good," "fair," or "bad." These terms mean nothing more than mere opinion, unless it has been determined beforehand what "good," "fair" or "bad" mean. Otherwise one inspector, badly trained, may designate as "good" an establishment which a better trained inspector would certify as "bad." If the regulations require that foods be covered to prevent contamination by dust and dirt, whether they are covered or not is a fact which can be answered by the inspector with "yes" or "no." If the regulations require that the establishment be properly screened against flies, it either is or is not so screened, and the inspector should say "yes" or "no." If the regulations require proper toilet facilities and equipment for workers, and their use by workers, the facts as to the adequacy and use of such facilities should be set forth. In short, there should be a question covering each regulation which the health authority deems essential, but no question regarding matters which are not covered by regulations. If the regulations are deficient in requirements they should be amended.

Having adequate regulations and a score card properly devised, the next step is to determine the point of attack. Little is gained by permitting inspectors to go about making hit or miss inspections without definite plan or objective. A complete registry of food establishments should be made, and if all food establishments are licensed, as they should be, this will be easy. All establishments should then be classified as groceries, restaurants, bakeries, etc. This having been done, a determination should be made of the group to be first inspected. Observations of conditions in many cities indicates that the most serious conditions of uncleanliness are found in restaurants, and this group should perhaps be the first to receive attention. Each restaurant should then be inspected and scored and, according to the numerical score, each establishment should be rated as A, B, C, or D,—A grade representing establishments with a rating of 90 to 100, B those from 80 to 90, C those from 70 to 80, and D those from 60 to 70. Establishments scoring under sixty should be refused license or their licenses revoked. When all establishments have been inspected, scored and graded, the score cards should be filed by grade as A, B, C, or D. To all A grade establishments a blue certificate or merit should be granted, and to all B grade establishments a red certificate. No certificates should be granted to C or D grade establishments. The educational value of the granting of such certificates is apparent, and its effect is invariably to stimulate competition on the part of the proprietors of the establishments.

When all inspections of establishments in each group have been made, the scores and grades established, and the score cards filed by grades, the next step is plain. The obvious point of attack is upon those establishments rated as D and C, and efforts should be made to raise the

grading of these establishments. Instead of having inspectors going about making more or less routine inspections of all establishments, their attention could be directed immediately to those places where conditions are bad and a menace to public health. If these places are improved and raised to a higher standard, it is quite possible to measure the efficiency of inspectors by the results of their work. It is not possible otherwise. Once the above system is established and put in operation, the field of inspection, the effort required, the cost of service and the menace to the public should continually grow less, and these, of course, are the objects desired.

It may be well to point out the more important features of inspection of food establishments, for the prevention of food contamination through unclean methods, practices or habits of food handlers. The need for physical examination of food handlers has already been pointed out, but it is quite possible for a food handler of unclean habits to become a real menace to public health even though he may be in good health. It is practically impossible to control the food handler who is wilfully unclean, but experience shows that the cleanliness of food handlers is usually in direct proportion to the facilities for cleanliness provided, and their education and training in the use of such facilities. Food regulations should therefore require that food establishments be provided with proper toilets equipped with closets in good working order, and with adequate supply of water for flushing. Hot and cold water for washing purposes should be required, as well as soap and paper towels, so that food handlers may have no excuse for failing to take advantage of their opportunities for cleanliness. In all such toilets, proper placards should be posted setting forth the necessity for cleanliness of habits,—and it should be the duty of the inspector to educate food handlers to a proper conception of the relation of cleanliness to public health.

That foods should be protected against their promiscuous handling by customers goes without saying, but comparatively little attention is paid to this matter by municipal health authorities. Typhoid carriers are not by any means uncommon, and the connection between the fingers of an unclean typhoid carrier and a subsequent case of typhoid, can be readily established even though it may not easily be demonstrated. The protection of food from promiscuous handling by patrons of food establishments should, therefore, be required in regulations and guaranteed by inspection.

The elimination of the fly menace in food establishments is another important factor in the prevention of dangerous food contamination, and the elimination of this menace is dependent chiefly upon the prompt and proper disposal of wastes. The disposal of food wastes, and the proper screening of food establishments, should then be matters covered comprehensively and definitely in regulations and in inspectional procedure.

If inspection of food establishments is worth while, and in the opinion of the author it is decidedly worth while, it should cover completely and thoroughly the above features of food handling—and for the sake of emphasis they are restated in brief:

1. Provision of proper toilet facilities for the use of employees, and the education of the employee in the use of such facilities.

2. Protection of food from promiscuous handling by patrons of food establishments.

3. Elimination of the fly menace by prompt and proper disposal of wastes and proper screening of food establishments.

These should be the minimum aims of inspection of food establishments. There are, it is true, other phases of such inspection of some importance, but if the efforts

of inspectors are concentrated upon those named, results in health protection can be secured even though the measure of resulting benefits may not be so readily demonstrated statistically. There will, however, be apparent to citizens, a cleanliness and wholesomeness in food establishments which will merit their decided approval.

To sum up the argument of this paper, it may be said, that the chief need in food inspection service is for intelligent direction of inspectors and the concentration of effort on work which is productive in the prevention of disease. This requires, first, proper organization of the food inspection force; second, definite and specific regulations covering each part of the program; third, instruction of inspectors in the procedure to be followed; fourth, assignment of inspectors according to a result producing plan; and fifth, the concentration of effort where the need is greatest. If these things are done, the measure of the value of food inspection work in the prevention of disease may be estimated. The reason why it cannot be estimated now is because health authorities have not directed their work to this end. If food inspection other than milk inspection is not productive in community health, then it is about time all health departments turned their attention to other work. If it is productive in health benefits then it should become a feature of the health program in every city.

Classes for Undernourished Children.—The following is a summary of methods used in conducting classes for undernourished children at Bellevue Hospital.

When a child enters the class his general history is recorded, including the diet he has been receiving, the time he sleeps, the length of time spent out-of-doors, etc. A complete physical examination is made. A social worker gets the social and economic facts which have a bearing on the case and which may have a direct relation to the condition of malnutrition in the child. A printed slip giving instructions in hygiene and a diet list are then given the mother. We have a food exhibit of artificial foods showing the day's ration arranged in the form of three meals. By quickly changing the plates we show how one article may be substituted for another of equal caloric value. This graphic demonstration serves to impress the facts on the mother's mind. It also serves to emphasize the importance of properly selected, well cooked and well served food. Nearly all of the portions represent 100 calories of the various articles of food, but we do not say much about calories in attempting to teach these ignorant people as we have found it better to show them definite meals, arranged in amounts proper for a child.

We give our instruction by means of class talks to the mothers, using wall charts and showing them what makes a child gain in weight and what makes him lose. We have a weight chart for every individual child, and collective weight charts showing the weight curves of every child in the class. There are also sheets for home records, and each child is supposed to keep this record showing just what he has eaten, how many hours he has slept, how much time he has spent out doors and exercising, when his bowels have moved, etc.

At first the children return each week to be weighed and examined; later they come only once in 2 weeks if they are progressing favorably, and the interval between visits is gradually lengthened as they approach a normal weight for their ages. By this class method the child has his attention directed to the faults of others, and profits by them, and a spirit of competition is aroused which can be used with advantage.—Smith, C. H., *Archives of Pediatrics*, XXXV, No. 7, p. 428. (*D. G.*)

ICE CREAM EPIDEMICS AND MODEL REGULATIONS FOR CONTROL.

H. W. Hamilton, M. S.,
First Lieutenant, Sanitary Corps, U. S. A.
Sometime Research Assistant, Massachusetts Institute of Technology.

THE manufacture of ice cream in the United States is now to be classed as one of the larger industries. The many and intricate machines for its manufacture, the costly plants using these and the enormous resultant output speak plainly of the growing importance of this great industry. Health officials have not paid the attention they should to this industry and any progress has been largely due to the wonderful desire of ice cream manufacturers to make for the good of the trade. Some states and cities are alive to this vital issue and others are daily awakening.

An excellent history of the industry is to be found in "Principles and Practice of Ice Cream Making" by R. M. Washburn, published by the Vermont Agricultural Experiment Station.

One problem that is today an open issue between the manufacturer on the one hand and the health official on the other is the question of food value of ice cream. The former largely consider it a confection, the latter are inclined to the idea that it is a food. The voice of the sanitarian and food chemist is heard in the report of the Commission on Milk Standards in the Public Health Reports, Vol. 32, page 285. The general trend of the claims of manufacturers is manifest in a booklet, the "Brief on the History and the Present Meaning of the Term Ice Cream" compiled by C. G. Child and published by the National Association of Ice Cream Manufacturers. Whatever the arguments it is certain that ice cream is an ever-increasing article of diet, particularly in the summer months, often being the main or only nourishing part of a lunch.

Chemical analyses of ice cream, usually for its fat content, are to be more generally found in municipal health laboratories than are bacterial analyses and constitute what one man terms, "Examination from the side of the pocketbook rather than of health." Careful supervision of ice cream factories by local health authorities is highly desirable. Bacterial analyses are readily made in any laboratory where the ordinary apparatus is at hand and score cards may be used for inspections. (Bulletin, 563, U. S. Dept. of Agric., Bureau of Animal Industry, "The Determination of Bacteria in Ice Cream.") One need hardly call attention, however, to the uselessness of Sanitary Regulations without adequate provision of machinery to enforce them.

With a full appreciation of the growth and development of ice cream manufacturing in the United States the author undertook the task of finding out by means of questionnaires, sent throughout the United States, the approximate number and intensity of epidemics due to ice cream in this country. At the same time an

effort was made to find out what means were taken of sanitating the processes and factories.

It is not proposed to make an extensive review of the literature on this subject but as an example of epidemics in other countries the general findings of Dr. G. F. Buchan (1910) in England are here given. (Journal of Hygiene, Vol. 10, No. 1, page 93.) In all he records eight epidemics and one case of ptomaine poisoning. Of the epidemics one was scarlet fever, one was of an unknown nature, two were cases of Gaertner infection, and four were typhoid. In only one case, a Gaertner infection, was the organism actually isolated. Some were traced to the cream, while others were traced to illness in the home of the vender.

As to our own work there were ninety-one cities from all parts of the United States which replied. Eight of these provided inspection of ice cream establishments, five depended entirely upon the state, while four coöperated with the state. Seven reported epidemics and five food poisonings from eating ice cream. Where such inspections are left wholly to the state the best conditions apparently cannot prevail.

A brief summary of the epidemics and poisonings reported as being due to the eating of ice cream is here given.

Epidemics.

At Perth Amboy, N. J., in 1913, there was an epidemic of eighty cases of typhoid fever undoubtedly due to the eating of ice cream. Mr. W. H. MacDonald of the State Department of Health, and William J. Wilkey, health officer of Perth Amboy, traced the trouble to a wholesaler. The wholesaler purchased from many producers but pasteurization remedied the difficulty.

In 1917 about twenty-five cases of typhoid fever took place in St. Louis, Mo., as a result of eating ice cream at a private dance. This of course could not be definitely traced, due to the time taken for the incubation of the disease, but there seems to be little doubt.

In 1915, at Gallup, N. M., a typhoid outbreak was traced to a dairy selling milk and cream. Subsequently at Holbrook, Ariz., two cases of typhoid broke out which were traced to the eating of ice cream made from the infected cream shipped from Gallup. Doctor Bazell of Holbrook traced the Arizona outbreak.

During the summer of 1914 there occurred fifty cases of typhoid fever in the Park Slope district of Brooklyn, N. Y. The New York City Health Department traced this epidemic to a certain establishment where those affected had eaten ice cream. A careful inspection of the place failed to disclose the cause.

In the spring of 1915 nine cases occurred in the same district, and were traced to the same establishment. Another investigation was made, this time with greater success, for a carrier was found.

The same department traced an epidemic of twelve cases of typhoid fever in South Brooklyn to a definite location, an ice cream parlor, and a chronic carrier was found.

At Newport, R. I., there was a

rather serious outbreak of diphtheria of milk origin. (Public Health Reports, Vol. 32, page 1787, Oct. 26, 1917.) It became quite evident from the investigations of Surgeons McCoy and Bolton of the United States Public Health Service and Doctor Bernstein of the State Board of Health that ice cream, which was made from infected cream, was the carrier of the disease to most of the infected persons. Visitors to Newport, as well as inhabitants of neighboring towns, were affected. All gave a history of having eaten some of the infected ice cream, used the cream, or were contacts. Of four hundred and two cases recorded there was only one death.

Other epidemics are known to have occurred in various parts of the country, particularly small ones in the South. Among the larger epidemics that have been reported is one in Pennsylvania. This was typhoid, from a contaminated milk supply.

Poisonings.

Under this head are given those illnesses which resulted from the eating of ice cream but which did not require any prolonged period of incubation. The use of the term "ptomaine" as a blanket for the unknown is not readily permissible. It is by no means certain that any of these poisonings are the result of alkaloidal products of bacterial activities on proteins, but they may be due to changes taking place in the material as a result of bacterial activity following ingestion.

At Lynn, Mass., a number of persons, including a physician, were affected with the usual symptoms of ptomaine poisoning as the result of eating ice cream. A thorough investigation by the local Health Board failed to disclose any conclusive evidence.

At Rochester, N. Y., ice cream eaten at a picnic resulted in the illness of about forty people. A chemist failed to isolate any alkaloid that would be considered specifically poisonous from the sample submitted to him. Dr. G. W. Goler, health officer of Rochester, carefully investigated the affair but did not find any definite and conclusive cause.

In 1914, Dr. E. C. Chipman of New London, Conn., reports thirty or forty cases of poisonings as the result of ice cream eaten at a picnic in Waterford. All recovered. Two controls, shut in children, in different families, one ate the cream with cake and was ill, one ate the cake only and was not ill.

In May, 1914, several cases of poisoning occurred in Kewanee, Ill., due to the eating of ice cream from at least two manufacturers. Investigations were conducted by Doctors Crawford and Klein and Mr. Gaskell. Cases always followed shipments from a certain creamery, which was above question. A certain producer supplying this creamery had very unsanitary conditions. By eliminating this source from the Kewanee supply the trouble was stopped. The trouble occurred again in Galena where the cream was used.

Many of these epidemics of poisoning are said to have caused nausea, vomiting, cramps, diarrhea and collapse. It is interesting to note that

an outbreak of similar form in New Jersey was traced to a cow suffering from an udder infection of an unidentified streptococcus. (Public Health News, Vol. 1, page 102. New Jersey State Board of Health.)

Other cases of poisoning from ice cream eating have from time to time been reported as due to refrozen ice cream or the result of metallic poisonings from freezers. It is to be doubted if any of these have been proven, especially the latter.

Discussion.

From the reading of these epidemics one can see that in so far as the ice cream industry is concerned its sanitation consists in (1) the use of ingredients with a clean sanitary history, (2) the use of properly cleaned utensils and a clean factory, and (3) the proper handling of material by individuals with a clean bill of health.

In the first case the milk and cream are the worst offenders and may be controlled by the pasteurization of the raw products. This may either be done at the plant or only products of such a nature purchased. Fortunately the ice cream manufacturers take kindly to this and have installed plants for this purpose. Any change in viscosity of cream so treated is easily restored by a twenty-four hour storage at a cold temperature.

The second is to be controlled by frequent inspections. Score cards help chiefly as reminders. Helpful coöperation accomplishes more than a long list of prosecutions, but when the latter are required they should be quickly and quietly made.

The third requires regular and careful inspections of all workers, for gonorrhea, syphilis, typhoid, tuberculosis, sore throat, skin diseases and the like. Persons suffering from temporary colds or other like minor ailments should not be permitted in the making or handling rooms. Health officials should be as helpful as possible in this matter and inspectors should call for an inspection of health certificates.

With the foregoing facts in mind, and also as a result of a careful examination of various state laws and local ordinances, the author has composed a model and comprehensive set of rules and regulations relating to the manufacture, storage, and sale of ice cream—as follows.

Manufacture.

A. Ingredients.

1. All milk, cream, condensed milk, homogenized cream, and skimmed milk used in the manufacture of ice cream shall have conformed to all the requirements for use as a food as contained in—(here give exact references to laws and ordinances).

(Pasteurization is to be recommended.)

2. No water, fruit, fruit juice, pastry, condiment, flavoring, coloring matters, sugars, gums, gelatines or other substances shall be used which are not pure and wholesome, and free from any injurious substances.

3. The use of melted ice cream after refreezing, or mixing is prohibited.

4. The finished product shall contain not less than — per cent butter fat as determined by the Babcock Test and be free from all preservatives and products of decomposition.

5. The finished product shall not contain bacteria in excess of—(allow slight excess over milk) when determined by growth on plain-nutrient agar (+1) at 37° C. for forty-eight hours, platings and dilutions to be made with all materials at 37–40° C.

B. Utensils.

1. All utensils which come in direct contact with the liquid ingredients or the frozen product must be of non-absorbent, non-poisonous materials.

2. All utensils must be thoroughly cleansed with fresh boiling water and soap after each time used.

3. All utensils kept ready for use must be free from dust. All selling and shipping utensils must be sterilized or rinsed in clean boiling water after each time used.

4. No utensil used in storage of ingredients, making, storing, or transporting of ice cream shall be used for any other purpose.

C. The Factory.

1. All walls, floors, and woodwork must be impervious to water, free from cracks, crevices, projections, or other dust and dirt-collecting places.

2. The drainage must be such as to permit easy flushing and rapid carrying away of the water from the floor which must be kept clean at all times.

3. The factory must be above ground.

4. The lighting arrangements shall permit an adequate supply of sunlight during the daylight hours.

5. No ice cream shall be manufactured in a kitchen, washroom, workshop, sleeping room, stable, or in close proximity to a room used for any purpose than that directly related to the manufacture of ice cream. Where rooms of this kind adjoin they shall be so partitioned off that direct communication is impossible.

6. Adequate toilet facilities shall be provided. These shall be partitioned off from every part of the factory and not directly communicating with any making or handling rooms.

7. There shall be constantly available during the working hours a good supply of hot water, soap and clean towels, conveniently placed with facilities for washing the hands.

8. The factory shall be free from flies and other insects. It shall also be free from odors not directly connected with the industry.

9. The ventilation shall be such as to secure an adequate supply of air, free from excessive dusts.

D. Individuals in the Manufacture and Handling.

1. All persons engaged in making or handling ice cream or of the utensils used in the process must be free from all forms of contagious disease.

2. No clothing shall be worn by those engaged in the making or handling of ice cream that is not washable and in a clean, fresh condition.

3. The bare hand or absorbent material shall not be used in manipulating the product in any way.

E. Storage and Transportation.

1. All ice cream must be held at a temperature below 20° F.

2. All ice cream must be kept only in closed containers.

3. A new batch shall not be packed on top of an old one.

4. Cabinets and tubs shall be properly drained at all times.

5. Wagons, cars, and other means of transportation shall be in no way unsanitary.

F. Sale.

1. All persons engaged in handling ice cream for sale must meet the same conditions as those engaged in its manufacture.

2. All places where ice cream is offered for sale must meet the same requirements as those for the place of manufacture.

3. All utensils for serving must be washed with clean hot water after each time used. Sinks are prohibited when kept filled with water for repeated washings.

4. All surfaces on soda fountains, counters, draining boards, ice boxes, tables and places where drinks and refreshments are served shall be non-absorbent and frequently washed with *scalding* water.

5. All refuse in refreshment booths, soda fountains and ice cream parlors must be kept in closed receptacles emptied and scalded at least once daily.

FEEBLEMINDEDNESS AND SOCIAL ENVIRONMENT.

PETER H. BRYCE, M.A., M.D.,
Chief Medical Officer, Dept. of Immigration and Colonization, Ottawa, Ont.

EVERYWHERE, from earliest prehistoric man up to our most complex international politics of today, the essence of our problem then was and is now biological, and if we adopt the inductive methods of psychology we can build on a solid foundation our social ethics, since as explicitly stated by A. F. Tredgold, consulting physician to the National Association for the Feeble-Minded: "Whatever may be the relation of mind to brain it is now fully recognized that the manifestation of mental activity is indissolubly connected with the cells of the cerebral cortex. Mind develops *pari passu* with their growth and fails with their decay." When John Stuart Mill urged that "Every man is a part of nature and subject to its laws as causation," we can agree that morality becomes necessarily social and based on man's relations to his environment, both human and non-human, since he is subject to the law of causation the same as Nature around him, and that as man evolves socially it will mean the rythmic activation of all his energies toward one common end, namely, the liberty to will and to do in the pursuit of the highest good.

Accepting for ourselves biology as the basis of our experimental psychology, there rests upon us the peculiar duty of becoming the apostles of a social ethics, which ought to determine men's activities from those of the mere individual up to the highest functions of the state, and yet: How many of us have consciously adopted any such social creed? How many are convinced for instance in our communities that the greatest good in an election is not associated necessarily with the party having the longest purse? How many parents have such clear ideas of their duty to the state that they are prepared to be inconvenienced in their pleasure by rearing a normal number of children? How many are willing to sacrifice their personal comfort or profit, it may be, through living in a smaller community or even in the country in order that they may rear a robust family of children for the state? Or finally how many have ever given serious thought to the problem of how we can best conserve our energies with a view to transmitting to the coming generation those high physical, mental and moral traditions of the Anglo-Saxon race which have distinguished this continent for three centuries?

Much has been written about what statistics prove, especially for the last half of the nineteenth century, as regards the superior people, especially of the New England and Atlantic States, in the matter of a birth-rate decline, amounting to a positive lessening of the population equilibrium of the old Anglo-Saxon stock; while intellectual Brahmins and cultured blue-stockings have boasted rather of their superiority to biological laws, or perhaps even believed in their ability to create higher and superior ones, when as a matter of biological certainty the egotism that boasts itself thus betrays an egoism which Dr. Nordau cleverly demonstrates as being but an early evidence of degeneracy. I do not remember to have met anywhere a more vivid picture of the effects of certain social conditions amongst the old eastern people than that contained in a study by Miss E. H. Irwin regarding certain families in a westside school in New York City. The study states that this Fifty-third Street school was chosen "because it was largely composed of American born chil-

dren, many of whose parents are American born."

"This neighborhood of first, second and third generation Americans is in strong contrast to the more familiar eastside, where a foreign born population swarms the streets and a strange language meets the ear from every hand. On the eastside, teeming dirt and teeming life struggle for the uppermost. On Fifty-third Street, neither the dirt nor the people are so overpowering; life is more sluggish and poverty more gaping. The contrast is as between watching one race of human beings clambering up a hill that is hard and rocky and steep, yet ever making progress as against another slipping back into a quicksand, struggling without hope and ever losing ground. Ambition is replaced by indifference, expectation by despair. In an immigrant neighborhood one hears constantly of the future of children, their education, their already begun success; but here what glory there is exists as a left-over recollection of the past generation, of better conditions during the childhood of the parents, of wealth and power, growing brighter in the memory as this goes on. One hears too the constant echo of that sentiment of defeat that 'Times are not what they were' and that 'things grow worse every day.'"

I feel quite certain that many old physicians from different parts of America can recall in their experience similar groups out of which have come one or several families betraying more or less markedly the stigmata of degeneracy. We have no time to analyse such, but several characteristics seem to stand out most markedly in them and of these I shall put first *mimetism*. Mimesis we define as imitating or aping the gestures or voice of another, or of his manners or actions; while anyone who has studied the phenomena of hypnotic suggestion will see in its subjects various characteristics, which remind us of perhaps what is most marked in feeblemindedness, namely, the ease with which a person is influenced through suggestion or mimetism. The imbecile echoes immediately your suggestion that black is white or that two and three make four, and when we come to the higher type of moron we recognize the same dominating influence of some proximate suggestion, influence or example. Translated into exact terms it means that there is absent, or more or less permanently quiescent, the determining influence of conscious mind or "the will"—viz., the cultivated mind which instantly discriminates, determines or wills, and keeps in the background the activation of the emotional or automatic—that is the subconscious mind. We say feeblemindedness is in effect marked by lack of comprehension, judgment, discrimination—in a word of ratiocination. As expressed by Nordau: "To this is added the unfailing weakness of will of the degenerate person, which makes it impossible for him to control his obsessions, to resist his impulses, to control his fundamental moods, to keep his higher centres to the attentive pursuit of objective phenomena."

Without analyzing further the psychological phenomena of feeblemindedness we have after three generations under modern conditions an opportunity of judging somewhat of the influences of social conditions upon mental phenomena. The grandmothers of our race in America had a dozen children, labored hard, and often lived till ninety years. In the year 1790 but 131,472 persons in the United States lived in towns, or less than 4 per cent in 3,929,214 population. Thus we see that in a century the urban population increased over a 1,000 per cent, or over ten times from 4 per cent to 46 per cent of the total population of the United States, in cities of 2,500 or over.

As a result of this urbancy alone Dr.

Nordau says, "All these increased activities, however, even the simplest, involve an effort of the nervous system, a wearing of the tissues. Every line we read or write, every human face we see, every conversation we carry on, every scene we perceive through the window of the flying express sets in activity our sensory nerves and our brain centres." The logical outcome of this cerebration carried to an abnormal degree is neurasthenia, with which all observers associate the psychopathic basis of epilepsy and insanity and predominantly feeblemindedness, since Tredgold expresses the absolute view that environment directly impresses itself upon germ plasm, affecting it in one or more determinants, which if increased by mal-environment in the first generation extended to the second or third is cumulative in a degeneracy, increasing till idiocy is the result. The anatomical basis is, as Tredgold states, that of an inherited instability, defective metabolism and tendency to premature degeneration of nerve cells, the actual exciting cause of disease being supplied by toxins or by any of the numerous forms of stress and strain incident to modern life. What some of these are is sufficiently indicated by subjects dealt with in the many papers presented in the different sections of this annual Public Health Congress. Reverting, however, to the question of the origin, education and development of the mind and will as growing out of its experiences it will be apparent that we have forces inimical to the evolution of mind operating from two opposite poles. The one is where external impressions are wholly wanting, and the other where their impulses succeed each other so rapidly upon the eye, the ear, the nose, skin and so on as to prevent any well defined and conscious image being stamped upon the central nerve cells and so result in an insensibility to impressions almost as unfortunate as where no impression, whatever is present. It is idle, indeed, to expect conscious perceptions, ideation or thought if either no distinct perceptions rise into consciousness or, even if developed, no time for linking up associated groups of ideas in thought is given owing to constantly fresh and new external impulsions too rapidly impinging on some special sense. But oddly enough while on the one side these multiplied sensations too often result in an inattention and even an unconsciousness of them,—a necessity, indeed, to prevent the brain from absolute exhaustion through attempting too long to co-ordinate multiplied sensations—there results on the other hand through an abnormal hyperaesthesia often developed when such environment as just mentioned is maintained, an unhealthy, clamant demand for something to tickle or temporarily satisfy the irritable, unstable, automatic brain centres, often approaching the state of the exhaustion of dementia. This is illustrated in the case of many feeble-minded children, who move almost constantly when awake in a purposeless manner from one thing to another and whose attention it is impossible to fix for more than a moment.

When we consider the numerous variations of the mental objective or purpose in the millions of individuals in great cities it seems hopeless to analyze the activating forces at work in them; but they resolve themselves as a matter of fact, into a few main groups whose effects we may study. For instance the home environment of a purely physical character is much the same for hundreds of thousands, differing perhaps mostly in the size of rooms and the amount of air space, in the amount and extent of warmth and sunshine. To this we may add the degree of cleanliness and the amount and character of the food supply. The sights impressed on the eye are the same for most, being chiefly walls and rows of houses often in shadow, defect-

ive sunshine and street scenes of every sort with indeed much the same sounds, both in quality and amount. In the streets the means of locomotion are the same and at a little later age the objects which impress themselves, from the newsboy shouting his cries to the food vendors, become the chief mental impressions from this external world and are much the same for all people. Similarly at school, the kindergarten, the lessons in class, the mode of teaching, the drill and calisthenics are everywhere the same forming a type of education, common in fact to millions of minds in a great city like New York. Succeeding this a few leading papers continue the educative process for those who are old enough to read and from illustrations like "Buster Brown" to the last striking expression of the baseball reporter, the mind of the adolescent American is being padded out only to be completed by the transient presentation of an underworld, which has for many hitherto only been hinted at in newspapers, but is now visualized through concrete illustrations in the "Movies."

If I am right then it is inevitable that thought—the product of mind which groups through association individual impressions, repeated until they rise into consciousness and there become concepts, which through differentiation become well defined ideas—must primarily deal with those material issues which fit the city dweller to cope with his immediate environment and in the great mass of the people cannot receive adequate impressions and evolve ideas regarding affairs, foreign to city life and still more regarding problems which are world-wide or supra-mundane. Remembering that at least 80 per cent of the population of our cities are dependent upon a daily wage, utilized almost wholly for their immediate wants, and that they are influenced directly, physically, mentally and morally by their social environments, we need not wonder if a type of feeblemindedness is the outcome, relatively common when compared with those in a population brought up in the open with Nature supplying daily her wholesome sensations in a normal environment.

Remembering, too, that the mind, made up of presentations from infancy of a city world around it, is incapable of displacing such readily and of receiving those from natural objects foreign to it, we can see how, where as in the United States 12,000,000 were added between 1900 and 1910 to a city population of 32,000,000, the difficulty of our problem increases enormously with every decade. How we are to check the degenerative process or antidote the tendency seems to me to be one of the problems toward which the chief energy of public health workers everywhere today must be specially directed. To illustrate, as I write this millions in New York City are shut within its walls with a plague almost as mysterious as that of Athens in the days of Pericles as described by Thucydides, while the strike of thousands of car men and the threatened strike of five hundred thousand railway employees are each so many assaults upon emotional nervous systems already overwrought and exhausted in the unprecedented high temperatures of long July days, productive of malign effects upon hundreds and thousands of individuals unequal to the strain. Multiply these conditions for the many millions of people of all our great cities and towns and we are forced to ask ourselves, *Cui bono?* For what good? Are all future generations to be ever and increasingly the creatures of such environment, where the individual personality becomes almost lost or is a pawn in the game where capitalistic knights and kings hold all the moves? I cannot believe that such a fate is either necessary or inevitable in a world whose ethical progress is or ought to be ever upward. Outward and laterally into fresh

air and sunshine by every conceivable means of transport,—instead of upward toward an uncertain heaven—where the hands can touch the kindly bosom of Mother Earth, plant roses in her garden and later gather fresh flowers and fruit seems to me the only solution to the problem of how we are to prevent the rapid degeneration of a race, who once had Anglo-Saxon freemen for their ancestors and were something other than automata, ever drudging and rolling a Sisyphus stone up a mountain of struggle without a top, or exhausted through the thirst of hopeless labor seeking to drink from the golden cup of Tantalus always just beyond their reach!

A BACTERIAL EXAMINATION OF GREEN VEGETABLES.

FRED WILLIAM KURK.

From the Department of Hygiene and Bacteriology, University of Chicago

IN this investigation, attention was principly directed toward estimating the presence of the coli-typhoid group, streptococci and anærobic organisms on green vegetables. Examinations were also made to determine the number of bacteria by use of agar, and gelatin plates and the number of ærobic spore formers, of gas formers in lactose broth and of molds was recorded. An attempt was made to find whether the general sanitary conditions of the store at which the purchase was made had any influence on the bacterial contents.

All samples for these examinations were purchased at various stores about Chicago, with the exception of Number 5, a sample of watercress obtained from a glass bowl containing water on a free lunch counter in a saloon.

The media were made according to the rules given in "Standard Methods of Water Examination," of the American Public Health Association.

Five organisms superficially resembling paratyphoid bacilli were isolated, but in no case did the complete cultural and agglutination reactions place them in this group.

B. coli were found on 22 out of 29 samples. Of 12 samples from stores classified as clean, 11 showed B. coli; of 10 samples from stores classified as fair, 6 showed B. coli, and of 6 from dirty stores 5 contained B. coli.

Streptococci were found on 3 samples—on 2 samples from clean stores and on one from a store listed as fair.

B. cloacæ were found on 5 samples—3 from dirty stores and 2 from stores listed as fair. The sample of green onions, Number 14 contained a great number of B. cloacæ. A week later another sample, Number 15, obtained from the same place, again showed a great number of B. cloacæ present.

Mold spores were found on only 13 out of the 29 samples.

Twenty-eight out of the 29 samples contained gas formers in lactose broth.

The total bacterial count at 37° C. and 20° C. varied widely, the former from 6,000 to 4,300,000: the latter from 18,000 to 25,800,000.

Summary: There is great variation in the bacterial counts. No direct sanitary relations in the store sampled were apparent, but it must be noted that the free lunch counter sample gave a very high colony count.

The observations do not seem to indicate that the general sanitary conditions of the store influenced the bacterial count.

TABLE I.

Sample number	ondition of store	Vegetable	Size of sample examined	Bacteria at 37° C. 48 hrs.	Bacteria at 20° C. 72 hrs.	B. coli on endo	Anaerobes.
1.	clean	celery	1 gram	26,700	liquefied	16,000	0
2.	clean	head lettuce	3×4 in.	30,200	liquefied	0	0
3.	fair	celery	1 gram	53,000	liquefied	0	0
4.	fair	head lettuce	3×3 in.	249,000	liquefied	0	0
5.	*	watercress	1 gram	4,060,000	25,800,000	2,300,000	0
6.	clean	watercress	1 gram	1,550,000	5,750,000	22,000	0
7.	clean	head lettuce	4×4 in.	116,000	plate spoiled	0	0
8.	clean	green onions	onion	3,300,000	plate spoiled	1,120	0
9.	clean	lettuce	4×4 in.	178,000	plate spoiled	60	0
10.	fair	head lettuce	4×4 in.	6,000	18,000	0	0
11.	fair	leaf lettuce	4×4 in.	12,000	102,000	0	0
12.	clean	leaf lettuce	4×4 in.	480,000	2,800,000	970	0
13.	fair	celery	1 gram	1,800,000	4,400,000	640	0
14.	fair	green onions	onion	2,400,000	8,600,000	0	0
15.	dirty	green onions	onion	2,580,000	4,200,000	6,200	0
16.	dirty	celery	1 gram	700,000	740,000	3,600	0
17.	dirty	leaf lettuce	4×4 in.	88,000	1,600,000	0	0
18.	clean	green onions	onion	18,000	25,500	300	0
19.	clean	celery	1 gram	68,000	132,000	600	0
20.	fair	leaf lettuce	4×4 in.	640,000	2,100,000	0	0
21.	fair	green onions	onion	4,300,000	3,200,000	450	0
22.	fair	leaf lettuce	4×4 in.	470,000	650,000	700	0
23.	fair	radishes	radish	1,530,000	1,040,000	2,200	0
24.	clean	leaf lettuce	4×4 in.	940,000	1,200,000	4,000	0
25.	clean	radishes	radish	340,000	760,000	1,000	0
26.	clean	watercress	1 gram	320,000	350,000	100	0
27.	dirty	leaf lettuce	4×4 in.	260,000	360,000	300	0
28.	dirty	head lettuce	4×4 in.	640,000	600,000	460	0
29.	dirty	celery	1 gram	1,200,000	1,660,000	160	0

* Watercress from free lunch counter.

TABLE II.

Sample number	Gas formers in lactose	Mold colonies	Streptococci	Aerobic spores	Kinds of bacteria identified.
1.		20	0	1,700	B. coli, B. subtilis, B. aerogenes, Cladothrix.
2.		0	0	300	B. coli, B. aerogenes, B. subtilis.
3.		0	0	3,600	B. coli, B. aerogenes, Cladothrix.
4.		0	0	1,360	B. coli.
5.		100	0		B. coli, B. paratyphosus A.
6.		160	0		B. coli, B. prodigiosus.
7.	2,000	0	0	3,100	B. mesentericus, B. subtilis.
8.	5,000	0	0	2,200	B. coli, B. subtilis.
9.	200	0	0	30,000	B. coli, B. mycoides.
10.	0	0	0	300	B. mesentericus, cladothrices.
11.	20	40	0	400	B. cloacae.
12.	2,000	0	0	4,500	B. coli, B. subtilis, B. prodigiosus.
13.	2,000	20	0	700	B. coli, B. fluorescens.
14.	10,000	0	0	2,200	B. cloacae in large numbers, B. subtilis.
15.	10,000	0	0	6,300	B. coli, B. cloacae.
16.	10,000	60	0	4,400	B. coli, B. cloacae.
17.	20	0	0	2,400	B. subtilis, B. mesentericus.
18.	2,000	200	+	1,800	B. coli, B. subtilis, streptococci with small cocci, green mold.
19.	10,000	0	+	8,700	Streptococci with large cocci, cladothrices.
20.	200	0	0	4,100	B. mycoides, B. fluorescens.
21.	2,000	20	0	2,200	B. cereus, B. coli, B. mesentericus.
22.	200	0	0	650	B. coli, B. subtilis.
23.	5,000	100	+	1,750	B. coli, streptococci.
24.	5,000	60	0	1,800	B. coli.
25.	2,000	700	0	3,400	B. coli.
26.	200	0	0	2,800	B. coli.
27.	2,000	20	0	1,800	B. coli, B. mesentericus.
28.	5,000	0	0	3,800	B. coli.
29.	200	80	0	3,200	B. coli, B. cloacae, B. subtilis.

THE PUBLIC HEALTH INSTRUCTOR—A NEW TYPE OF HEALTH WORKER.

E. V. Brumbaugh, M. D.,
Director of Public Health Instruction, Wisconsin Anti-Tuberculosis Association, Milwaukee, Wis.

THE steadily increasing demands of the military service for graduate nurses has caused a situation in the nursing service of the country that is as acute as the medical situation.

This scarcity of nurses has been felt in public health work with increasing severity. The supply of new material has been directed to army service with ever increasing speed. County nurses have left their fields, and municipal and industrial nurses have enlisted in military service in such large numbers, that public health work has been handicapped by the loss of trained workers and unable to fill their places by recruiting of newly graduated nurses. Communities have, through long campaigns of education, been at last brought to realize the need of the service of the nurse and social worker, and have been induced to cheerfully make appropriations for their support, and now when ready to provide for such service are unable to secure it.

This situation has been realized, with great concern by the Wisconsin Anti-Tuberculosis Association, which has been very active in urging the importance of the county nurse, and the public health nurse, as great factors in the development of better health conditions among the people of the state. Wisconsin is preeminently a state with a rural population, and the Anti-Tuberculosis Association has devoted a very large part of its efforts to the improvement of rural health conditions. As part of this effort, it has for the past three years conducted twice yearly, a course of instruction for training public health nurses.

This course has been conducted in the city of Milwaukee, and has been limited to graduate nurses who were desirous of preparing themselves for public health work. More than fifty nurses have taken the course, and these nurses have been placed widely throughout the state, and the Association has thus come to be regarded as a clearing house for communities desiring such service. The experience obtained in conducting these courses, as well as careful study of the work they have been doing, joined to a careful analysis of the ideals and aims of public health nursing, has brought about a deep-seated conviction that the work of the public health nurse is fundamentally educational in its scope; that her work must be primarily and emphatically directed to the purpose of awakening the public mind to its increased responsibility in matters of health; that she must be the leader of health movements in her community; she must be emphatically a teacher, if she is to realize the aim of true public health progress.

In order to accomplish this aim, the nurse must be thoroughly trained in the theoretical knowledge upon which the control of disease is based, and must understand widely and broadly the fundamental problems of preventive medicine. She must know, and thoroughly understand the problems of tuberculosis, infant hygiene, and school inspection; she must be familiar with the problems of pure food and proper living.

To secure this information, she must take graduate courses after completing her training and, there, must be trained in the fundamentals of social service. The courses for public health nurses given by

the association have endeavored to meet these ideals and give them instruction in these subjects.

With the realization of these needs, and stimulated by urgent necessity, realizing that three years is necessary for the training of the nurse, and that thereafter a post graduate course is often necessary, it has become apparent that some shorter method of preparing health workers, who at the same time will be competent and qualified, must be found.

The solution of this problem has been found in The Public Health Instructor. The Public Health Instructor is not a nurse; she is not a teacher (as we commonly understand that term); she is not a social worker; but is a combination of all the functions of these classes, directed solely to the accomplishment of the public health ideal; she is not a nurse, for she will have no training whatever in the technique of bedside nursing. Her instruction will not be given in the hospitals. She will not be taught surgery, materia medica, gynecology, etc. Yet she will have intensive and thorough and complete instruction in the principles of preventive medicine. She will know how disease is caused and how it is spread. She will be made thoroughly familiar with the possibility of extending the term of life by right living. She will know the problem of infant mortality, and cancer prevention. She will be instructed in the effect of pure water, good food, and fresh air upon longevity of human life. Likewise, her instruction will show her the importance of relieving the remediable defects of early childhood, and their retarding influence on mental and physical development. These and all the other elements that may result in making her completely the master of the problems of life conservation and extension, will be thoroughly and completely taught her, so that her entire thought will be governed by the ingrained overpowering importance of these subjects.

She is not a teacher, in the sense that she will proceed to a school, and conduct a class in formal health instruction or "hygiene," though it is part of the conception of this new type of worker that she will be qualified to do this, and that she may actually do it in some communities. But she is a teacher in that her whole duty is to pass on both by example and precept, the knowledge that she has already learned. She is a teacher in that every act of her service in her community shall be directed to the making clearer the reasons and need for the practices that she teaches. Her sole function as a public health worker is to increase the understanding of her community in better and saner methods of living.

She is not a social worker in the sense that her function consists in investigating and correcting the living conditions of people whom she sees; nevertheless, this duty will engage a large part of her time and attention. Her instruction will teach her the importance of the family as the unit of community life, and the causes that result in the destruction of family life, as well as the means by which the family whether disintegrated through vice, crime, drink, poverty, disease, or other cause may be restored to usefulness and self-respect. She will be taught how to make use of social agencies, juvenile courts, detention homes, protective associations, charitable aid or county relief associations, mother's pensions, blind relief, little mothers' classes, homes for dependent children, war time compensation, handicapped workers and Industrial Welfare Associations.

Some instruction in elementary first aid as well as thorough drill in Publicity methods will be taught, and likewise elementary instruction in Anatomy and Physiology will be attempted.

These elements describe the theoretical

side of the instruction of this new type of worker. This, however, comprises only a part of her instruction and indeed the greatest importance is laid on the side of practical experience. This is to be gained by actually doing the various types of health work in the actual field. At first this pupil will accompany an experienced worker as an observer. This will be continued for several days after which she will be assigned cases for individual solution. These will be of increasing difficulty until at last she is adept in the branch of field service, when the practice will be repeated in another department. This field service will require a full half of the time of the worker, and will be divided into periods of four to six weeks of daily work in school inspection, child hygiene, tuberculosis, communicable disease, rural sanitation, industrial welfare, etc.

The most significant point of this course, however, is the enormous saving of time that is to be accomplished. Admission to the class is only by invitation in this first course, the membership is to be limited to women of social vision and with a desire to be of service to their country and community, and the number in the class will be restricted to those that can be accommodated by the opportunity to do real field work. Bearing in mind the supreme importance of the teaching side of the great public health problem, the choice has been limited to women who have evinced ability as instructors, and who have broad vision of what the movement means. The members of the first class have been selected from among college graduates, normal school graduates, and experienced teachers who have been individually recommended by people qualified to pass on their suitability to undertake the work. By intensive training, their class will be ready in ten months' time, and will be fully qualified to go into their various communities to take up service and help to relieve the acute situation which has thus arisen, and at the same time release for military service the graduate nurse.

SOME PUBLIC HEALTH LESSONS OF THE WAR.

ERNEST C. LEVY, M.D.,
New York City.

Chairman's Address, Public Health Administration Section, Read at Washington, D.C., October 17, 1917.

SUCH general subjects as camp sanitation, protection of food supplies, precautions against the spread of epidemics and matters of a like kind are, after all, only our familiar public health problems of every day life transferred to a different environment, and while the carrying out of these measures under the peculiar conditions of modern warfare is undoubtedly more difficult in many respects than the carrying out of the same measures with the civil population, we have as an offset to this the increased authority and the more liberal appropriations coming from greater appreciation of the importance of protecting the lives and health of our soldiers.

In problems of the kind just referred to, I think I am safe in saying that we have actually learned nothing of great importance from developments along public health lines during the war and up to the present time. What we have gained is the awakening of a very considerable proportion of all the people to the importance of public health work and to its

possibilities, not in a theoretical direction, but as demonstrated by actual accomplishment.

All of us have realized the great change and the broadened outlook on public health work which have come to sanitarians within the past few years. Up to quite recently the highest ambition of public health workers was to show each year a diminished morbidity and mortality rate from certain named diseases. If a public health officer could show that in the brief period of his incumbency he had cut the typhoid death rate down to one-fifth of its former proportions and had a steadily diminishing rate from scarlet fever, diphtheria, tuberculosis, infantile diarrhœa and of infants under one year of age, he felt that he had done about all of which his scientific knowledge and practical experience were capable.

But within the past few years we have had a higher ambition. We have for some time felt that we were not doing our full duty in dealing merely with the negative side of health, but that it was most distinctly within the province of a health officer to put forth every effort to raise the vitality of every human unit in his community to the highest point of efficiency. He became no longer satisfied with the knowledge that hundreds of individuals each year survived who might but for his efforts have died of some preventable disease, but he has felt that with these survivors he must lay the foundations for robust citizens of tomorrow, and so our ideals have advanced, taking in not only the previous field of sanitation but also that of personal hygiene.

How to reach the individual, however, has been the problem. Obviously, health officers could not personally supervise the daily life of every individual in the community. We came therefore, to see the necessity for educational measures, directed both to the end of securing better understanding, and hence better support of the health department, and also of so educating the individual as to furnish him with the knowledge of how to promote his individual health and with the incentive to put that knowledge into effect. It is just in the last particular that every health officer has realized the weakness of his appeal.

The chief teachings of personal hygiene are simple, and the results of following these teachings are out of all proportion to the time and trouble involved in putting them into effect. Nevertheless, the average individual finds even these simple things irksome, and no little strength of mind is required on the part of the individual to follow, day in and day out, the positive and negative precepts of health. The actual demonstration of the results of personal hygiene is one of the greatest public health lessons of the war.

Those of us who have been in public health work, even for the past decade, have seen the strenuous efforts made by many public health workers to take advantage of popular movements, hoping thereby to secure for their teachings a degree of attention and impressiveness which they have almost despaired of gaining by direct appeal. A few years ago "conservation" was the watchword, and an attempt was made by many sanitarians to attach the cause of public health to this great movement. None too well fared the general cause of conservation, but almost negligible were the results so far as gaining in this manner a new appeal for conservation of the public health. The argument—self-evident to all public health workers—that the foremost asset of this nation, or of any nation, is a robust citizenry, was readily accepted in theory, but I have yet to hear of an instance in which this argument secured for the cause of public health more liberal financial or moral support than had been obtained by our previous methods of appeal.

More recently, the popular catchword of conservation gave way to a slowly awakened interest in preparedness. New hope arose in the hearts of many of our foremost public health workers. It was so evident that in any scheme of preparedness the human unit was most important, that we hoped at last to have found the long desired means of appeal. Summer before last we had considerable numbers of men in the various camps of our National Guard, and the wonderful results of even a few months of physical training and enforced obedience to the laws of public health worked marvels, yet the impression made on the general public was practically *nil*. Great crowds watched, returning to their home towns, groups of robust, upstanding men, models of physical vigor, and could scarcely believe that these were the same pale-faced, shambling young men and boys who had gone to camp a few months before. But there the observers stopped, and it is safe to say that not one in a hundred was moved to go and do likewise.

In the past few months—since this country entered the war—we have passed beyond the stage just mentioned. Preparedness with us now brings up a picture radically different in at least two respects from that invoked even one year ago. Then it was preparedness against a danger remote and not generally felt; now it is against a menace which, if not actually imminent, is kept from us because other nations stand between us and that menace. Then we thought of it as applying, at the outside, to one citizen in a hundred (the proportion needed to give us a million trained men); now we realize that it applies to every man, woman and child of our hundred million population.

As a result of this, it seems as if at last we have an appeal for the cause of public health which can be made to reach the masses as has no appeal which we have been able to make in the past. Every intelligent person realizes that if this country is to come out victorious in the present conflict, and if it is to enjoy any sense of security for the future, those lessons of public health which are old to us who have so long labored in the cause must be taken to heart and practised by every individual and in every community.

The psychology of this has a parallel in the past history of public health work. It is well within the last fifty years that the true foundations of our modern science of public health were first laid. Up to that time, and from time immemorial, man exerted organized efforts against disease only in the face of terrific epidemics. When the great plagues of former days were devastating nations, unlimited powers were conferred on the public authorities in the effort to check the scourge. Little as was known of just what to do, nevertheless neither money nor power was stinted in the effort to put that little knowledge into effect, but at other times health departments were either non-existent or had little to justify their existence beyond measures of civic cleanliness, and but little as a rule was done even in this direction. In other words, when fear gripped the human heart, lethargy and indifference disappeared and power and financial support were freely forthcoming.

It is even so at the present time. This fear is not fear of the plagues of bygone days. It is fear of a powerful and relentless human enemy. In spite of all new inventions and improvements in modern warfare, individual efficiency of our fighting men still occupies first place, and this efficiency has health as its very foundation. This is now universally admitted. Moreover, it is well known that efficiency in the field must be backed by efficiency of the nation in its support of those at the front, and this can be attained only by national vigor, applying to every human

unit and maintained by obedience to the teachings of public health. Once this is realized, there should come universal appreciation of those things which the few of us have all along appreciated to the fullest extent, but for which our appeals have been of so little avail.

Those of you who heard the excellent address of Governor Whitman at our Rochester meeting, two years ago, may recall his statement, that already in the State of New York, the burden of debt and taxes caused by the constantly increasing demands of those activities grouped as social service, clearly pointed to the fact that a halt must soon be called. True, we were heartened by His Excellency's addendum, that when the time came for curbing these activities public health should be the last cause to suffer.

The State of New York had in no year up to that time spent as much as four hundred thousand dollars for all its public health activities, and last year slightly exceeded that amount. When we contrast this sum with the huge amounts which every nation is today spending in the cause of war, we come perhaps to the most outstanding lesson of all, namely, that any nation can when impelled by a motive sufficiently strong secure money in any amount which may be required.

Our problem, then, is how we can so appeal to the people as a whole, and to our legislative bodies in particular, as to make them see that disease is a foe always threatening, always alert, always ready to find our weaknesses and take advantage of them, a foe, moreover, against whose attacks our measures can be made efficient. Against such a foe we must adopt and enforce our own measures of protection. Armies and navies of allied powers avail us naught.

I would, therefore, urge upon every member of this Association the importance of studying constantly the reaction of the people in the strenuous times in which we are now living. We see that under sufficient stimulus, they will give thousands of times the amount of money which we need for public health work in ordinary times. Under it they will resign cheerfully, and in supreme degree, that personal liberty of action which in far less degree we have asked them to resign for efficiency in community health work. By such study, we should be able to learn somewhat of how to touch those springs of human action which arouse response. And when days of peace have come to us—peace founded on constant preparedness, with maximum human efficiency as its very corner-stone—may we not hope to have found an appeal for support, financial and moral, through which we may be enabled to give always to the people the full benefits which our science can bestow on them?

◆

A BIBLIOGRAPHY OF FIELD WATER SUPPLY.

JACK J. HINMAN, JR.
Water Bacteriologist and Chemist, Laboratories for the State Board of Health, State University of Iowa, Iowa City

THE methods of securing water for troops have been given an added interest lately by reason of the entry of our government into the present war. Under the abnormal war conditions in any locality where large numbers of men are assembled, the matter of obtaining sufficient water of any quality may become very difficult. This shortage of water has necessitated the pumping of water through very long pipe lines; its transportation for great distances by tank ships, as in the Gallipoli campaign, or the employment of trains, motor- or horse-drawn tanks, and carriage by pack animals or the men themselves. The distribution of water to the men, and the watering of horses in such a manner as to be free from nuisance and as sanitary as possible is a subject in itself.

Some of the men and officers appear to believe that the typhoid inoculation to which they have been subjected renders safe the drinking of any water, no matter how badly polluted. If the typhoid fevers, which constitute the chief menace from water-borne disease in a large part of our country, were the only ones likely to be encountered in the war zone and on our southern border, this belief might carry some weight. The possibility of contracting asiatic cholera, amoebic and bacillary dysentery, and perhaps other diseases, makes such an idea a fallacy. Then too, deliberate poisoning of wells, as well as their deliberate defilement by the enemy, must be considered.

Under such circumstances the obviously proper attitude is to consider all water supplies heavily contaminated unless the contrary is known. Toxicological and sanitary investigations should be made as rapidly as practical and the purest supplies in the region chosen if it is possible to do so. Some means should then be employed for rendering the water safe with the minimum impairment of its palatability.

Although a great amount of work has been done on these subjects, the space devoted to water purification and examination in most of the available manuals is very small. Very few references are given to the literature which is available and which should be consulted in any attempt at a comprehensive study of the general subject of field water supply. It is this situation which justifies the presentation of the rather extensive bibliography which accompanies this paper. Some of these articles are highly interesting; some are long and detailed, while others are short notes. For the benefit of those who may have little time to devote to the subject, the more interesting papers in the collection are marked by an asterisk. The various articles have been grouped according to the chief topics or according to the subjects in which the newer or more novel procedures were advanced. There has been overlapping in the subjects, of course.

The articles on analytical methods are chiefly concerned with devising rapid processes and portable outfits. Usually the reagents have been reduced to a minimum and put up in concentrated or tablet form. Even prepared bacteriological media has been reduced to tablets, one of which is the correct size for a tube of the medium. Only articles which deal with field methods are included since it is probable that the Standard Methods of Water Analysis of the American Public Health Association (third edition, 1917)

will be used as far as possible without modification.

The cantonment supplies, as well as those of the large camps, need not differ greatly, in the design or the operation, from those of the municipalities. In the field, however, the quantities handled are relatively much smaller and special purification methods are employed.

The desiderata in field water purification are many and there is some conflict among them. Their purpose is to secure universal applicability and invariable efficiency. While it is necessary, of course, to strike a balance among the various factors in judging a process, it may be well to set some of these desiderata down so that they may be kept in mind:

1. The process should be efficient in the purification of all sorts of water under field conditions.

2. The apparatus should be readily transportable—if possible without the aid of wheeled transportation.

3. The apparatus should be durable and not likely to be damaged or thrown out of adjustment by the rough treatment to which is would naturally be subjected in field service.

4. Cumbersome supplies or fuel which might become unobtainable in the field should not be required.

5. Skilled attendance should not be necessary since the skilled operators are likely to be transferred to other organizations or incapacitated in service.

6. The process should purify the water within a few minutes time, yielding a water which is not objectionable to the men by reason of its odor, taste, raised temperature or the undesirable action of substances left in the water.

Heat has long been used in field sterilization, and it is perhaps the surest available agent for the purpose. Commonly the water has been boiled at night, protected from dust, and allowed to cool until morning. Sometimes the cooling has been hastened by the surface evaporation from a moistened cloth covering or from a porous vessel in which the water was contained. Heat-exchange sterilizers, such as the Forbes, which was adopted in 1898, have also been employed. All of these devices require fuel, and the heat-exchange sterilizers require skilled attendance to keep them in adjustment. The ordinary heating process requires considerable time for cooling.

Filters of all degrees of efficiency have been employed. The candle-filters have been much used by the European armies, but the difficulty with them is that they must be cleaned every three or four days, and they are very easily broken. Moreover, the housings of the filters must be tight and it is hard to keep them so, under the pressure which must be applied.

Sand filters and cloth or sponge filters, often with auxiliary coagulation, may purify water sufficiently, but are probably most useful in preparing it for subsequent chemical treatment. The Darnall filter and the more cumbersome drifting sand filter are examples of portable filters employing coagulants.

Chemical treatment is, however, the chief dependence at the present time, and chlorine in its various forms seems to be the most common germicide. Acid sodium sulphate, permanganates, bromine and iodine are also used. The acid sulphates in tablet form (with aluminum water bottles) have been supplied to cavalry. The French circular No. 68/S of October 27, 1914, prescribes methods for the use of permanganates and iodine, although Javel water (sodium hypochlorite) is apparently preferred.

The chlorine germicides which have been employed are liquid chlorine, the hypochlorites of calcium and the alkalies as well as the more complicated chlorine compounds such as "Halazone" (para sul-

phondichloraminobenzoic acid). A lack of space prevents entering into the methods, often very ingenious, of applying these substances.

It is true, of course, that there has been a great deal of information derived from the experiences of our allies and even from those of the enemy. It is probable that we will learn of many new developments when the present need for secrecy no longer obtains. It may be worth while mentioning, however, that the Darnall filter and the Lyster bag are the devices of officers of our own medical corps. Col. C. R. Darnall was the first person—so far as the writer knows—to apply liquid chlorine to water purification. His experiments at Fort Myer in 1910 were reported in this journal.

BIBLIOGRAPHY OF FIELD WATER SUPPLY.

A. Books.

1. Ashburn, Major P. M., *The Elements of Military Hygiene*, second edition, Boston, 1914.
2. Dakin, H. D., and Dunham, E. K., *Handbook of Antiseptics*, New York, 1917.
3. Fauntleroy, Surgeon A. M., *Report on the Medico-Military Aspects of the European War*, Navy Department, Washington, 1915.
4. Ford, Col. J. H., *Elements of Field Hygiene and Sanitation*, Philadelphia, 1917.
5. Freeman, Capt. E. C., *The Sanitation of British Troops in India*, London, 1899.
6. Havard, Colonel Valery, *Manual of Military Hygiene*, third edition, New York, 1917.
7. Hurst, Temporary Major A. F., *Medical Diseases of the War*, London, 1917.
8. Jones, G. E., *Hygiene and War*, Carnegie Endowment for International Peace, Washington, 1917.
9. Keefer, Lieut. Col. F. R., *Military Hygiene and Sanitation*, Philadelphia, 1915.
10. *Laboratory Manual of the United States Army*, War Manual, Number 6, Philadelphia, 1918.
11. Leighton, M. O., *The Field Assay of Water*, U. S. Geological Survey, Water Supply Paper Number 131, Washington, 1905.
12. Lelean, Major P. S., *Sanitation in War*, second edition, London, 1917.
13. Lynch, Major Charles, *Report of Military Observers in Manchuria during the Russo-Japanese War*, Part 4, War Department, Office of the Chief of Staff, Washington, 1907.
14. McClernand and Judson, *ibid.*, Part 5.
15. McDill, Major J. R., *Lessons from the Enemy*, War Manual Number 5, Philadelphia, 1918.
16. Melville, Col. C. H., *Military Hygiene and Sanitation*, London, 1912.
17. Tournade, Medicin Major André, *La Pratique de l'Hygiene en Campagne*, Paris, 1916.
18. Vedder, Lieut. Col. E. B., *Sanitation for Medical Officers*, War Manual, Number 1, Philadelphia, 1917.
19. Wilson, Lieut.-Col. J. S., *Field Sanitation*, fourth edition, Menasha, Wis., 1917.

B. General Articles.

20. Anon., *British Medical Journal*, February 6, 1915.
*21. Baehr, *Zeitschrift für Hygiene und Infectionskrankheiten*, LVI (1907), 113.
*22. Dudgeon, *Royal Society of Medicine Lectures*, IX (1916), 101.
23. Fitzgerald and McCullock, *American Journal of Public Health*, VII (1917), 655.
24. Grinnell, *American Review of Reviews*, LIII (1916), 341.
25. Hesse, *Deutsche medizinische Wochenschrift*, XLI (1915), 154.
26. Hinman, *Engineering and Contracting*, XLVI (1916), 29.
27. Kissalt, *Deutsche medizinische Wochenschrift*, XLI (1915), 213.
28. Kuehl, *Deutsche Vierteljahrige offent. Gesundheitspflege*, XLVII (1915), 38, through *Chemical Abstracts*, X (1916), 792.
*29. Lyster, *Military Surgeon*, XL (1917), 401.
30. Martel, *Comptes rendus Acad. Sci.*, CLXI (1915), 680.
31. Martel, *Rev. d'Hygiene et de Police Sanitaire*, XXX (May 20, 1915), through *Bulletin Mensuel Office International de l'Hygiene Publique*, VII (1915), 1024.
32. Morgenroth and Weigt, *Hygienische Rundschau*, IX (1901), 773.
*33. Nasmith, *American Journal of Public Health*, VII (1918), 259.
34. Seaman, quoted *Scientific American Supplement*, LX (1905), 24675.

*35. Tomlin, *Engineering News Record*, LXXX (1918), 892.

36. Vivien, *Bul. assoc. chim, sucr. dist.*, XXXIV (1916), 36, through *Chemical Abstracts*, XI (1917), 3071.

C. Analyses.

37. Anon., *Annales des falsifications*, VIII (1915), 206.

38. Anon., *Le genie civil*, LXIX (1917), 257.

39. Aubry and Lanialle, *Bul. sci. pharmacol.*, through *Chemical Abstracts*, XI (1917), 3353.

40. Benoist, *Journal de pharmacie et de chimie*, 7th series, XV (1917), 149, through *Chemical Abstracts*, XI (1917), 2243.

41. Bornand, *Sanitarisches-demographisches Wochenbulletin der Schweiz* (1916), 538, through *Bulletin mensuel office international de l'hygiene publique*, IX (1917), 266.

*42. Brétau, *Journal de pharmacie et de chimie*, 7th series, XII (1915), 68, also in French official circular, Number 936/S of July 26, 1915.

43. Burg, *Journal de pharmacie et de chimie*, 7th series, XV (1917), 189.

44. Compte, *Journal de pharmacie et de chimie*, 7th series, XIV (1916), 135.

45. Fleury, *Journal de pharmacie et de chimie*, 7th series, XIII (1915), 215.

46. Gaillard, *Rept. pharm.* XXVIII (1917), 134, through *Chemical Abstracts*, XI (1917), 2514.

47. Greenwood & Yule, *Journal of Hygiene*, XVI (1917), 36.

*48. Heise and Behrmann, *Philippine Journal of Science*, XIII (1918), Section A, pp. 1–17.

*49. Kohn-Abrest, *Annales des falsifications*, VIII (1915), 207.

*50. Kohn-Abrest, *Annales des falsifications*, VIII (1915), 212.

51. Kroeber, *Pharmaceutische Zentralhalle*, LVI (1916), 704, through *Chemical Abstracts*, X (1916), 2010.

*52. Lelean, *Journal of the Royal Army Medical Corps* (September, 1914), through *Bulletin mensuel office international de l'hygiene publique*, VI (1914), 1962

53. Markl, *Archiv. für Schiffs-und Tropenhygiene*, VIII (1903), 434, through *Journal of Applied Microscopy*, VI, (1903), 2724.

54. Vergnoux, *Union pharmaceutique* (May 15, 1915), through *Chemical Abstracts*, IX (1915), 2954.

D. Heat, Ultra Violet Rays and Ozone.

55. Bertarelli, *Revista di Ingeneria Sanitaria*, XII (1916), 92, through *Bulletin mensuel office international de l'hygiene publique*, VIII (1916), 1045.

56. Croner, *Deutsche medizinische Wochenschrift*, XLI (1914), 1734.

57. Duleman, *Chemische Zentralhalle*, II (1910), 1097.

58. Erlwein, *Wasser und Abwasser*, VII (1914), 567, through *Chemical Abstracts*, XI (1914), 2014.

59. Truby, *Military Surgeon*, XL (October, 1914).

60. Vlahuta, *Bul. sci. acad. romaine*, IV (1916), 322, through *Chemical Abstracts*, X (1916), 2012.

E. Filters.

61. Anon., *Bulletin mensuel office international de l'hygiene publique*, VII (1915), 1921.

62. Anon., *Bulletin mensuel office international de l'hygiene publique*, VIII (1916), 1545.

63. Anon., *La technique sanitaire* (September–October, 1915), 152.

64. Bertarelli, *Rivista di Ingeneria Sanitaria*, XIII (1915), 4, through *Bulletin mensuel office international de l'hygiene publique*, IX (1917), 387.

*65. Darnall, *Bulletin Number 2, Office of the Surgeon General*, U. S. A., page 114.

66. Nasmith, *Journal of the Royal Army Medical Corps*, II (1915), 324, through *Bulletin mensuel office international de l'hygiene publique*, VII (1915), 1919.

67. Spitta, *Arbeit. kaiserliche Gesundheitsamt*, L (1915), 263, through *Chemical Abstracts*, X (1916), 2012.

F. Heavy Metals.

68. Kraemer, *American Journal of Pharmacy*, LXXVI (1904), 574.

69. Kraemer, *American Journal of Pharmacy*, LXXVII (1905), 265.

70. Moore, *American Journal of Pharmacy*, LXXVI (1904), 553.

71. Moore, *Year book U. S. Department of Agriculture* (1902), 175.

72. Nesfield, *Journal of the Royal Army Medical Corps*, XXIV (1915), 146, through *Review of Bacteriology*, V (1915), 42 (New series IV).
73. Stewart, *American Journal of Medical Sciences*, CXXIX (1905), 760.
74. Symposium, *Journal of the New England Water Works Association*, XIX (1905), 474.

G. Permanganates.

75. Bruère, *Bulletin mensuel office international de l'hygiene publique*, VII (1915), 562.
76. Dhingra, *British Medical Journal*, II (1901), 414.
77. Galaine and Houlbert, *Comptes rendus aad. sci.*, CLXIV (1917), 121.
78. Hankin, *British Medical Journal*, I (1898), 205.
79. Kruse, *Munchener medizinische Wochenschrift*, LXII (1915), 1157.
80. Kunow, *Zeitschrift für Hygiene und Infectionskrankheiten*, LXXV (1913), 311.
*81. Pénau, *Journal de pharmacie et de chimie*, 7th series, XII (1915), 123.
82. Trübsbach, *Deutsche medizinische Wochenschrift*, XLI (1915), 653.

H. Iodine.

83. Galwey, *Journal of the Royal Army Medical Corps*, XXIV (1915), 329, through *Review of Bacteriology*, V (1915), 42.
84. Gascard and Laroche, *Presse Medicale* (August 5, 1915).
85. Tarugi and Bragi, *Rivista di Ingeneria Sanitaria*, IX (1916), 269, through *Bulletin mensuel office international de l'hygiene publique*, VIII (1916), 556.

I. Bromine.

86. Aumann, *Deutsche militärarzliche Zeit.*, XLIII (1914), 55, through *Chemical Abstracts*, VIII (1914), 2763.
87. Pfühl, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXIII (1900), 53.
88. Pfühl, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXIX (1902), 518.
89. Schüder, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXVII (1901), 307.
90. Schüder, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXIX (1902), 379.
91. Schüder, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXIX (1902), 532.
92. Schumburg, *Deutsche medizinische Wochenschrift* (March 4, 1897).
93. Schumburg, *Zeitschrift für Hygiene und Infectionskrankheiten*, XXXIX (1902), 511.

J. Chlorine.

94. Anon., *Bulletin Chicago School of Sanitary Instruction* (June 23, 1917).
95. Anon., *Lancet*, CLCIII (1917), 53.
96. Anon., *Presse Medicale*, LXI (1914), 596.
97. Adams, *British Medical Journal*, II (1917), 184.
98. Archipiantz, *Roussky Vratch* (April 30, 1915), through *New York Medical Journal* (August 5, 1916).
99. Bassenge, *Zeitschrift für Hygiene*, XX (1895), 227.
100. Christian, *Wasser und Abwasser*, IX (1915), 539.
101. Compte, *Journal de pharmacie et de chimie*, 7th series, XIV (1916), 261.
102. Dakin, et al., *Journal of the American Medical Association*, LXIX (1917), 27.
*103. Dakin and Dunham, *American Journal of Medical Science*, CLIV (1917), 181.
104. Dakin and Dunham, *British Medical Journal*, I (1917), 682.
*105. Darnall, *Journal of the American Public Health Association*, I (1911), 783.
106. Ditthorn, *Deutsche medizinische Wochenschrift*, XLI (1915), 1127.
107. Doyon and Toda, *Comptes rendus soc. biol.*, LXIX (1916), 333, through *Chemical Abstracts*, X (1916), 2487.
108. Gorgas, *Report of the Surgeon General, U. S. A., for 1916.*
109. Gœthe, *Zeitschrift für Hygiene und Infectionskrankheiten*, LXXIX (1915), 521.
110. Haubt, *Deutsche medizinicshe Wochenschrift*, XLI (1915), 405.
111. Hünermann, *Deutsche medizinische Wochenschrift*, XXVII (1901), 391.
112. Jennings, *Engineering Record*, LXII (1910), 34.
*113. Johnson, *Journal of the American Public Health Association*, I (1911), 562.
114. Langer, *Deutsche medizinische Wochenschrift*, XXXIX (1913), 1837.
115. Lederer and Bachmann, *Engineering Record*, LXV (1912), 360.
*116. Lyster, *Military Surgeon* (March, 1915).

117. McWalter, *Journal of State Medicine*, XXV (1917), 41, through *Chemical Abstracts*, XI (1917), 1502.
118. Marshall, *Engineering and Contracting*, XLIX (1918), 40.
119. Massay, *Journal de pharmacie et de chimie*, 7th series, XV (1915), 209.
120. Nelson, *British Medical Journal* (May 8, 1918).
121. Nissen, *Zeitschrift für Hygiene*, VIII (1890), 62.
122. Orticoni, *Revue d'hygiene et de police sanitaire* (December 20, 1916), through *Bulletin mensuel office international de l'hygiene publique*, IX (1917), 266.
123. Ottolenghi, *Il policlinico*, XXXIX (1915), 1301, through *Bulletin mensuel office international de l'hygiene publique*, VII, (1915), 2092.
124. Ottolenghi, *Le Ingeneria Moderna* (January, 1916), through *Bulletin mensuel office international de l'hygiene publique*, VIII (1916), 554.
125. Pénau, *Journal de pharmacie et de chimie*, 7th series, XII (1915), 123.
126. Pénau, *Journal de pharmacie et de chimie*, 7th series, XIII (1916), 377.
127. Phelps, *U. S. Public Health Reports*, XXIX (1914), 2709.
128. Rabs, *Hygienische Rundschau*, IX (1901), 1085.
129. Race, *Journal of the American Water Works Association*, III (1916), 439.
130. Race, *Lancet*, II (1916), 71.
131. Race, *Canadian Engineer*, XXX (1916), 345.
132. Rhein, *Zeitschrift für Hygiene und Infectionskrankheiten*, LXXVIII (1914), 562.
133. Rideal, *Journal of the Royal Sanitary Institute*, XXXI (1910), 33.
134. Rishworth, *British Medical Journal*, II (1916), 220.
135. Robinson, *Bulletin of the Department of Public Health, City of Philadelphia*, II (1917), 67.
136. Rolland, *Journal de pharmacie et de chimie*, 7th series, XII (1915), 179.
137. Serger, *Zeitschrift für Hygiene und Infectionskrankheiten*, LXXXI (1916), 379, through *Chemical Abstracts XI* (1917), 3072.
138. Thiem, *Bulletin mensuel office international de l'hygiene publique*, VIII (1916), 1227.
139. Thresh, *Lancet*, II (1917), 807.
140. Traube, *Zeitschrift für Hygiene*, XVI (1894), 149.
141. Vila, *Journal de pharmacie et de chimie*, 7th series, XV (1915), 227, through *Chemical Abstracts*, XI (1917), 2244.
142. Vincent and Gaillard, *Comptes rendus acad. sci.*, CLX (1915), 483.
*143. Vincent and Gaillard, *Journal de pharmacie et de chimie*, 7th series, XI (1915), 271.
144. Wallace, *Indian Journal of Medical Research*, IV (1917), 800, through *Chemical Abstracts*, XI (1917), 3072.
145. Weichardt and Wolff, *Chemische Zentralhalle*, II (1916), 204, through *Chemical Abstracts*, XI (1917), 3355.
146. Wesenburg, *Hygienesche Rundschau*, XXV, (1915), 273.
147. Whittaker, *American Journal of Public Health*, IV (1914), 688.
148. Woodhead, *Lancet*, CLXXXVII (1914), 736.

K. Miscellaneous.

149. Anon., *Canadian Engineer*, XXX (1916), 189.
150. Anon., *Engineering News-Record*, LXXIX (1917), 271.
151. Anon., *Journal of the American Medical Association*, LXVI (1916), 130.
152. Anon., *Journal of the American Medical Association*, LXVII (1916), 890.
153. Anon., *Municipal Engineering*, LVIII (1916), 155.
154. Colin, *Comptes rendus acad. sci.*, CLXI (1915), 652.
155. Krause and Barbará, *Wiener klinische Wochenschrift*, XXXVIII (1915), 810.
156. Levy, *Münchener medizinische Wochenschrift*, LXII (1915), 1424.
157. Parkes and Rideal, *Transactions of the Epidemiological Society, London*, XX.
158. Strell, *Münchener medizinische Wochenschrift*, LXII (1915), 1158.
159. Weichardt and Wolff, *Mediz. Klinik* (January 23, 1916), through *New York Medical Journal* (March 25, 1916).

Received for publication, June 20, 1918.

CHARTS AND MAPS AS USED BY HEALTH OFFICERS.

GARDNER T. SWARTS, JR., C. E.,
Providence, R. I.

Graphic methods have been used by the engineer for many years, in solving some of his most complicated problems. The advantage of the graphic solution is the fact that it is usually made automatically correct and that it shows at a glance many facts about the problem which could not be readily deduced from a strictly arithmetical solution, in that general trends may be rendered more obvious. Business men have only lately (within the last two years) begun to realize the tremendous advantages of presenting facts graphically and health officers are more and more rapidly beginning to utilize these graphic records. They do this, not alone because charts help to plan work, but also because these graphic pictures are the clearest and the easiest way to tell the story of conditions to the public as a whole. The time when curves and graphs were a puzzle to the average layman has passed. We find them being used by various firms in advertisements, and they now have been shown in exhibits on public health and other matters for many years.

It is easy, for instance, for a layman to look at a map on which he understands that a red dot or red pin indicates a death from a certain disease during a given period. From this he can readily see that the grouping of red dots is more pronounced in certain districts, than in others. He usually finds, if he is familiar with the locality, that these dots follow the grouping of the homes of the poorer types of citizens. He is also much more easily convinced that the death-rate from tuberculosis is decreasing by a curve or series of bars of varied lengths, than he would be by a table of figures.

Graphic records, too, can be used to obtain appropriations and present facts to legislative committees or to the public in such a way that these bodies are bound to be convinced and to respect the requirements.

A large telephone corporation won a suit which the government had against it for being a monopoly, largely because it showed in court an immense pin map on which the stations owned by the company were indicated by black pins. As the stations from other companies were indicated by pins of other colors, it was evident from the map that there was no absolute monopoly, because the various colored pins were well distributed among black ones.

A school superintendent once used a map to effect a most desirable condition. He knew that a new school was required in a certain district because the child population was centered there. A certain alderman, however, was anxious to sell land in another district. While the matter was under consideration, this school superintendent had a pin map made, showing the location of the home of every child of school age within the city limits. He also showed the two proposed locations for the school. This map was displayed in a store window for a long period, and the superintendent found it convenient to be handy where people could ask him questions, as much of the time as he could spare. The result was that when the matter came up for final decision, the school superintendent, and incidently the welfare of the city, won out.

In this same way, health officers can and should use graphic methods, prove their points and obtain necessary reforms. The prime value in keeping graphic records lies in keeping records that are news, not history. To be sure, records of history are interesting but they are not always imme-

diately helpful. For this reason, methods which are quick and easy are far to be preferred to possibly more accurate and more complicated data. It is, therefore, always preferable to use every mechanical aid that is available.

As previously stated, the graphic display of facts and figures, outside of exhibits, divides itself into two classes, one of which is geographical and the other chronological. Because they are perhaps the simplest, the uses of maps will be taken up first and then the uses of charts.

houses. Where conditions in the street are to be shown (such as the location of street accidents) the reverse is true, and the names of the streets should be lettered in the blocks and not in the streets themselves. While solid color is not desirable, sometimes the outlining of ward lines or districts in a tint, and the coloring of parks is helpful in quickly locating any given district.

County Maps.

Rural delivery route maps are available for some counties. These are to a scale of

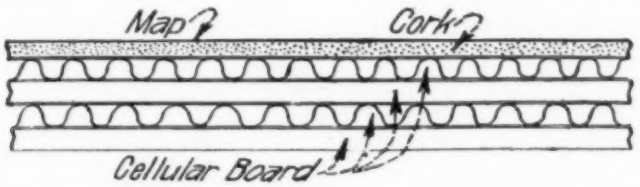


Fig. 1. Cross Section of Map Mount. This shows how the cellular board runs in opposite directions in adjoining layers to give stiffness and how the cork is placed immediately beneath the map.

PIN MAPS.

City Maps.

Plain outline maps without any coloring are by far the best for this purpose and may sometimes be obtained from the City Engineer's Department. A colored map is a disadvantage, because the color of the pins used on it do not show up nearly so well as on the plain map. A convenient size of map to handle is one about three or four feet square, but some cities use very much larger maps than this, occupying an entire wall of a room. It is better to have the scale of the map too large than too small, especially if certain sections are apt to be badly congested with cases. The scale of the map should not be over 1,200 feet to the inch if possible and 600 feet is considerably more satisfactory, unless this makes the map too cumbersome. The names of the streets should be lettered in plain type in the streets themselves if the pins are to be stuck in the location of the

one mile to the inch and, being in plain black lines on white, are excellent for pin work. The U. S. Geological Survey topographic sheets are also good where available. They show the location of practically every building, all roads, streams and the contour of the ground. They are also to the scale of one inch to the mile.

State Maps.

State health officers will often find good outline maps which have already been prepared by some other state department, the state board of roads or forestry perhaps. There are available for most of the states east of the Mississippi and a few on the western side, state maps in black and white to the scale of eight and sixteen miles to the inch respectively. For states where these are not available or where a larger scale map of slightly different type is wanted, the U. S. Post Route maps are very satisfactory. These show all post offices, railroads and the distances between

stations and are good, plain maps, the only coloring used being a tint for the county outlines. Sometimes outline maps showing only the county or township boundaries and containing no lettering at all are the best for pin work.

MAP MOUNT.

The mounting of the map is an important feature which is often overlooked by those who have not had previous experience with maps, or do not know the possibilities. Wood is unsatisfactory unless it be very soft and made up several ply to prevent warping and cracking. Sometimes wall boards are used and these are more satisfactory than wood as they come in widths four feet wide, and can therefore be made in one piece. Unfortunately, however, all marking pins now on the market are so long that they project through such board and those handling it are liable to injury from deep scratches received from the projecting points. Incidently, the pins cannot be pushed way in up to the head in either of these forms of mounts, because of their hard and compact texture. There are two reasons why pins should be pushed way in. One is to avoid the displacement of pins in dusting. Another reason, particularly important if photographs are to be made of the map, is that map pins which are stuck in way up to the head will photograph in their true location without throwing shadows. When pins stand out from the map, those nearer the edge of the map are apt to show in the photograph as though inserted a block or so from where they belong.

A form of mount (Fig. 1) which obviates the disadvantages mentioned above is one consisting of cellular strawboard and pressed cork. The soft cellular board backing makes it easy to push the pin in and the cork offers just enough frictional resistance to hold it securely.

It may also be desirable to size and varnish the face of the map as this protects it against dampness, and from being soiled by the hands of those who manipulate the pins. If it is desired to write on the map in any way, however, the varnish cannot be used. There is, however, a gloss size which partially protects the map and still makes it possible to write on same.

It is often poor economy, particularly in dry offices where warping is likely, to fail to provide a map with a good substantial frame. Very small maps, however, can sometimes be left unframed with the edges bound with tape, like a passe-partout photograph.

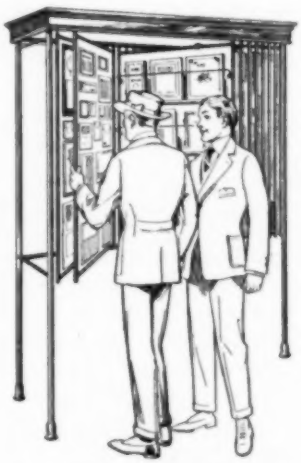


Fig. 2. Swinging Leaf Display Fixture.

In some very large places, sectional maps are employed, the maps being mounted in the drawers of a cabinet or on swinging leaves (Fig. 2) built like a large book. Generally speaking, however, it is found better for city maps to have the entire map in one piece. If a great many facts have to be shown, it is usually better to show each group of facts on a separate sheet rather than use a very large scale map in sections.

MAP MARKING DEVICES.

Public health officials were among the first to recognize the advantages of the pin map. In fact, the author recalls a case where a map was made up with common pins, colored heads being made of sealing wax. For a long time the only kind of marker for maps was a cloth head tack like a small carpet tack. The tack point defaced the map, often rusted the cloth and

FIG. 3. Where many pins have to be inserted it is easier for the fingers and for the pins to use a pencil eraser as a pusher in the manner shown.

even if the cloth was not rusted, it was sure to fade after exposure to the light. Recently, however, a newer type of marker (Fig. 3) has been introduced. This is a needle pointed pin of steel with spherical head of glass. These pins come in two sizes, 3/16 and 3/32 of an inch in diameter,

FIG. 4. Numbered Glass Pins. Rough Surface Glass Pins.

respectively. The smaller size is particularly useful on city maps where the scale is close. These pin heads are made of colored glass, and the color will never fade like the cloth tack, nor will it scratch off as in the case with pins on which the color is painted.

As sixteen distinct colors are available; it is possible to indicate by the pins alone an enormous number of facts. Moreover, still other types are available as, for instance, the spherical head with a dot, dash or X on top of it, also rough surface flat head pins (Fig. 4) on which numbers can be written or pins of celluloid or glass on which the numbers are already printed.

FIG. 5. Signal Flag.

Large pins of celluloid are available, ¼, ⅜ and ½ inches in size. Those with rough surface will take India ink or pencil markings easily, and these markings can be erased if the proper care is used. There are also signal flags (Fig. 5) of colored celluloid and pins with small card labels.

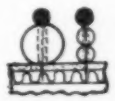


FIG. 6. Pin and Beads.

In addition to these devices for indicating one fact, there are available beads (Fig. 6) and map rings which can be used in connection with the ordinary pins and show several facts at any one point.

USE OF BEADS AND MAP RINGS.

A bead can be used in connection with a pin to show two facts at one point. For instance, the color of the bead may denote the nationality and the color of the pin the disease. Two beads may be used on the one pin to show three facts on one point. Too complicated systems, however, should be avoided. Beads can, however, be used

readily to indicate quarantine, quarantine removed, fatal cases and hospital cases. If only one bead is to be used beneath the pin, the small pin and the large bead (Fig 6) make the best combination. When looking on the map, the color of the pin appears to be surrounded by the color of the bead somewhat like a target. Map rings can be used instead of beads in this same way. Another use of beads is where it is desired to indicate an accumulation of cases on one spot. These bead columns are particularly valuable to show cases in a hospital or tenement. This avoids spreading pins over an area surrounding these nests of diseases. Long pins are available for this purpose, but if not long enough, steel wire can be used.

Where the beads pile up very high, it is convenient to make every fifth or tenth bead another color. This makes it easy to read the number of beads. A bead map of a congested district will show the hills and valleys of an epidemic in a very striking manner.

Map Cord.

Map cord is used in connection with pins, to show the sequence of the spread of a disease or the course of a suspected milk route. This cord can be obtained in the same colors as the pins and in practice may be held in place by being looped around small pins placed at the angles in the route.

SELECTION OF COLORS.

While every health executive must to a certain extent plan his own color scheme of pins and other marking devices, a careful choice of the colors to represent these facts should be made before even a simple series of maps is planned. Care should be taken for instance, not to have the color of a children's disease conflict with that of an adult disease. This is particularly true if beads or map rings are used as will be explained below. The following table gives a list of some of the facts that are commonly shown, and a carefully selected color scheme applicable to the entire lot:

COLOR SCHEME TABLES.

Pin Maps for Health Departments.

Diseases.

1. Diphtheria and Croup	Green
2. Malaria	Navy Blue
3. Measles	Heliotrope
4. Whooping Cough	Slate
5. Poliomyelitis	Canary Yellow
6. Scarlet Fever	Red
7. Small Pox	Brown
8. Typhoid Fever	Orange
9. Tuberculosis	Black
10. Meningitis	Lavender

Signals.

Beads or Map Rings.

Quarantine	Orange Bead
No Quarantine	No Bead
Death	Black Bead
Hospital Case	White Bead

Ages.

Under 1 year	Black
1 year	Turquoise
2 years	Blue
3 "	Brown
4 "	Red
5 to 9 years	Orange
10 " 19 "	Pink
20 " 29 "	Canary Yellow
30 " 39 "	Heliotrope
40 " 49 "	Green
50 " 59 "	Lavender
60 " 69 "	Light Green
70 " 79 "	Navy Blue
80 " 89 "	Slate
90 " 99 "	Yellow
100 and over	White

Nationalities.

1. American	Red
2. Chinese	Yellow
3. English	Blue
4. French	Lavender
5. German	Black
6. Greek	White
7. Irish	Green

8. Italian.....Light Green
9. Japanese.....Brown
10. Mexican.....Heliotrope
11. Polish.....Slate
12. Portugese.....Turquoise
13. Spanish.....Pink
14. Swedish.....Navy Blue

Other nationalities not mentioned in the above list are Armenian, Syrian, Turk and French Canadian. These can be substituted for any of the above nationalities not prevalent in the district studied. Sometimes a certain color is used for "all other nationalities."

USES OF MAP PINS IN HEALTH DEPARTMENTS.

Facts which a Health Department usually desires to indicate on maps are those dealing directly with the communicable and reportable diseases. Maps are generally prepared to show the location in the city or town of each case of tuberculosis, scarlet fever, measles, etc. They are, however, by no means confined to this use alone as they are often used to indicate sources from which milk or other food supplies are obtained and the routes over which they travel, location of vaults, stables and sources of pollution for water supplies; also by the food and inspection departments not only for the location of restaurants and markets, but also for indicating the activities of inspectors. Such maps are not only valuable to the health officer and his subordinates in helping him intelligently to deal with conditions, but also offer a striking and incontestable proof of certain facts which it is desirable to show to some committee or official, in order to effect any given reform. Maps of this kind not only show that the health officer is handling the matter in an intelligent and modern way, but those who view them know that the maps themselves are not influenced by over-enthusiasm or human frailty,—they only show the cold facts.

In some cities epidemics among school children are indicated not only by day school but also by Sunday school classes. It is frequently found that diseases are spread from one school to another by children who attend different schools, but are in the same Sunday school class. The pins usually show this up very effectively.

One of the eastern state departments of health is planning to use a swinging leaf fixture (Fig. 2) to hold maps of the counties in the state. On these large scale maps, every conceivable sort of health data is to be plotted. This is in addition to the maps of the communicable disease section which brings its own maps up to date each day. On these large maps the location of epidemics is shown, but they are only of secondary importance and are only corrected weekly. The number of cases of any one disease is shown by a numbered pin in the city affected. The other data is shown in the following way.

1. *Health Officers* are indicated by large celluloid tacks ¾" in diameter, with the name of the health officer written on the tack in pencil, also a small symbol in a secret code, indicating specific information as to the ability of the man.

2. *Sanitary Supervisors* are indicated by the same form of tack but ½" in size and blue in color.

3. *Epidemiologists, Supervising Nurses, Public Health Nurses, Inspectors, Tuberculosis County Hospitals and Dispensaries, Infant Welfare Stations, Private Health Agencies*, etc., are indicated by spiral top pins with cards, the color of the card indicating the nature of the agency, the name on the card being that of the agency.

4. *Epidemics* are indicated as above stated by numbered glass head map pins, the color of the pin indicating the disease and the figures on the pin indicating the number of cases. The color scheme indicated on page 678 is used for this purpose, but the color pink is added for emergencies.

5. *Water Supplies* are indicated by spherical headed pins 3/16" in diameter. A good

FIG. 7. A Pin Map of New York State. Each pin on this map shows one of the Districts in which New York State Supervising Nurses assisted local Health Officers in Poliomyelitis work during the 1916 epidemic. Note the advantage of a very plain outline map. This was copied from an illustration in the New York State Department of Health, "Health News," for November, 1916.

supply is indicated by a white pin with red spots, a bad supply by a black pin with white spots and questionable supplies by a turquoise pin with a white spot.

6. *Sewerage Systems* are indicated by a navy blue pin.

This plan is to be extended so as to show dairy conditions, labor camps, laboratory facilities, pasteurizing plants, etc.

This system has been worked out by Dr. B. R. Rickards, Assistant to the Deputy Commissioner, New York State Department of Health. It is hoped, by this Department, that the plan will be duplicated by each of the sanitary supervisors for their own district.

EXAMPLES FROM ACTUAL PRACTICE.

Maps are used in various ways by different cities, and as mentioned before, each man usually has to work out the best scheme for his own condition. Some examples from actual practice however, may bring out the advantages of various methods.

Washington, D. C.

In Washington, D. C., pins are used to indicate contagious diseases. The pin is stuck through the end of a small piece of paper, one-eighth of an inch wide and about one inch long. On this paper is written the case number assigned that case. When the case is removed from quarantine, the case number is removed but the pin remains in the map as a record. Maps are kept for two or three years back always in sight.

Providence, R. I.

In Providence, R. I., the maps are not glued on the mount, but are mounted on cloth and stretched over the cork composition mount in a substantial oak frame. Each map is kept for a period of six months,

then the pins are removed. As each pin is removed, colored ink of the color corresponding to that of the pin is used to mark the spot on the map where the pin was located. The maps are then filed for future reference. Separate maps are kept for special epidemics, such as poliomyelitis, but other contagious disease studies are all kept on one map. A pin with a white spot on top of it is used to indicate a hospital case and a black pin a death. A scale is drawn on the right-hand edge of the map indicating the total probable number of cases at any one time and a pin is stuck into this scale each day, being moved up and down as a barometer of the number of actual cases at that time. Infant Mortality maps are also kept utilizing pins and beads to show facts as suggested under the heading "Use of Beads and Map Rings."

North Carolina State Board of Health.

The North Carolina State Board of Health has recently adopted a system of pin maps involving some new features.* This has been worked out by Dr. A. R. McR. Crouch, State Epidemiologist, assisted by Mr. Warren H. Booker, Chief of the Bureau of Engineering and Education, and Dr. B. E. Washburn, Chief of the Bureau of County Health Work. Eight maps of the state are mounted on swinging leaf fixtures. One of these maps is used for each of the common reportable diseases. The maps are drawn on white paper and show only county and township lines, county seats, principal towns, railroads and water courses. Numbered tacks are used very extensively so as to show duration of quarantine.

When a disease is reported it is indicated on the map for that disease in the township or city in which the disease occurs, by a colored tack which has a numeral representing the day the quarantine will expire. In order to avoid complexity in the system no record of a quarantine is kept for more than thirty days; except typhoid fever, which is really not quarantined but merely placarded, for forty-two days.

The monthly reports are recorded on the maps, by counties, townships and towns. The maps also show the number of existing cases.

The following will explain the use of the various tacks:

1. White tacks with black numerals represent cases, the quarantine of which ends in the month of the report. At the end of quarantine they are replaced by red tacks (tacks No. 4).

2. Black tacks with white numerals represent cases, the quarantine of which ends in the month following the report. These tacks will be replaced by No. 3 at the beginning of the month following the report.

3. Yellow tacks with black numerals represent cases, the quarantine of which ends in the month following the report but which were tabulated during the previous month. Tacks No. 2 are replaced by these.

4. Red tacks represent cases, the quarantine of which ended in the month during which they were reported. These tacks are used only to replace tacks No. 1.

THE METHOD APPLIED TO A CASE OF MEASLES.

A case of measles is reported on September 6, 1917, from Beaverdam Township, Richmond County. The quarantine period of measles is twelve days. The quarantine, then, would end on the 18th day of September (the same month of the report). Insert in the map for measles a white tack (tack No. 1) with a black numeral 18 on it. On the 18th, at the end of the quarantine, remove the white tack with the black numeral and insert a red tack (No. 4), which shows that the quarantine of the case ended the same month of the report.

* This description was kindly furnished the author by Dr. Crouch.

Another case of the same disease is reported from the same place on the 28th of September. In this instance the quarantine period of twelve days extends to October 10th. Hence, a black tack with white numerals (tack No. 2) is used to represent this case.

On October 1st, before any tacks are removed or inserted, the red and the black tacks (Nos. 3 and 4) are counted and when added together give the total number of cases reported in September. The month of September with its total number of cases is then represented on the map by a fraction written with red ink in small letters. The numerator of this fraction (9) represents the month and the denominator (2) represents the total number of cases (9/2).

Now, the red tack is removed and the black tack with white numeral (tack No. 2) is replaced by a yellow tack (tack No. 3) bearing the same numeral which shows that the quarantine ends in the (what is now) present month (October), but is counted in the past month's report. On the day of the month (10th day of October) corresponding to the numeral on the yellow tack (tack No. 3), the tack is removed and no further record is kept of it, because the quarantine has ended and the case was recorded in the previous month. This method is applicable to all diseases, the quarantine period of which is not over thirty days, providing two days are added to the quarantine period in month of February.

In typhoid fever, each case is considered as existing for forty-two days. In many cases this period covers portions of three months and requires a different system of recording. The following will explain the use of the various tacks in recording this disease:

1. Black tacks with white numerals represent cases, the placarding of which ends during the month following the report. These tacks will be replaced by tacks No. 2 at the beginning of the month following the report.

2. White tacks with black numerals represent cases, the placarding of which ends in the month following the report. When the period of placarding expires the tack is removed.

3. Black tacks with red numerals represent cases, the placarding of which ends during the second month after the report. These tacks are replaced by tacks No. 4 at the beginning of the month following the report.

4. Yellow tacks with black numerals represent cases, the placarding of which ends during the second month following the report. These tacks replace tacks No. 3 and will be replaced by tacks No. 2 at the beginning of the second month following the report.

THE METHOD APPLIED TO A CASE OF TYPHOID FEVER.

A case of typhoid fever reported September 6th, is represented on the map by a black tack with a white numeral (tack No. 1) in the township or town in which it occurs. The numeral on tack No. 1 (18 in this case) represents the day of the following month on which the placarding ends; which is October 18th.

This tack remains in the map until the first of the month following the report, which shows that the period of placarding does not end in the month of the report.

Another case is reported on September 28th. The period of placarding for this case will end November 9th. In this case a month intervenes between the date of the report and the date the period of placarding ends. This case is represented by a black tack with a red numeral (tack No. 3) which remains in the map until the first of the month following the report; and when all of these and the No. 2 tacks are counted and added the total is the number of cases for September. The month (September)

and the number of cases are recorded on the map the first of the month following the report (October in this case) as the fraction:

$$9/2 \quad \left\{ \begin{array}{l} 9 = \text{month} \\ 2 = \text{cases} \end{array} \right\}$$

After the month and cases are recorded, the black tack with a white numeral (tack No. 1) is replaced by a white tack with a black numeral (tack No. 2). The numeral on tack No. 2 corresponds to the day (October 18th) that the period of placarding ends at which time the tack is removed. The black tack with a red numeral (tack No. 3) is replaced by a yellow tack with a black numeral (tack No. 4). The numeral on tack No. 4 corresponds to the day of the second month after the report on which the period of placarding expires. This tack remains in the map until November 1st, when it is replaced by a white tack with a black numeral (tack No. 2), the numeral of which corresponds to the day (November 9th) that the period of placarding expires, at which time the tack is removed.

CHARTS USED BY HEALTH OFFICERS.

Data which has to be recorded chronologically is best shown in graphic form. Reports issued by health officers have in the past been filled with table after table of death-rates and similar figures. Tables are really necessary as a matter of record and accuracy, but even health officers will probably admit they hardly make interesting reading. A table of figures is apt to be very confusing. It is hard to pick out the trend of facts from a mass of figures which confuse the mind. In a graph or chart however, this same data can be shown in pictorial form. In such a picture one sees not only figures for each year, but the relation of any one year to all the others, both in time and magnitude, all easily comprehended at a glance.

Health officers have become so accustomed to looking at tables that they have been rather slow to realize the advantages to themselves and to the public who read these tables of presenting this matter in the form of graphic charts. Many have, however, already realized the value of keeping such records so that they may be of daily use and this practice is rapidly growing.

Errors to Avoid.

While the use of charts is commendable, some curious errors occur when the novice starts in to prepare these without previous study of the subject. Even in important publications and exhibits today, the erroneous comparison of the figure of a man illustrating the death-rate in two different years is seen. The makers of these graphs fail to realize that when a man is drawn twice as high, he is also drawn twice as wide. This makes the area occupied on paper by the large figure four times the size of the small one and gives an erroneous impression, particularly to people who do not know much about charts. Of course, such methods are sometimes purposely used for exaggerating facts, but the practice is of rather dubious value, as it tends to throw discredit on the entire method. The same objection applies to the use of circles, the areas of which vary as the square of their diameter and, likewise, to the use of cubes and squares.

Another bad practice frequently seen is the cutting off of a curve diagram at a point above the zero line. This may give rise to very misleading impressions. If the zero must be cut off in order to use a larger vertical scale or to save the expense of a larger engraving, the base line of the chart should be jagged in order to attract attention to the excision.

The circular chart which is popular with some health officers is, in the writer's opinion, a great misfortune. Sectorial divisions are not easily compared, as these are area-comparisons of an odd shape. For making

comparisons, the bar chart is far preferable as the lengths are directly proportional to the figures and even in these the use of figures inside of the bar is apt to distort them so as to give an entirely wrong impression.

Standard Practices.

Certain standards in plotting graphs should be adopted as rapidly as possible. A special joint committee of the leading engineering societies has prepared a report, "Standards for Graphic Presentation," outlining the best practices and illustrating how these should be carried out.*

antine and deaths by diseases, nationalities and ages and the curves show at a glance many more facts than could be incorporated in a lengthy and wordy report and several tables of figures.

Good examples of the use of such charts in pictorially illustrated reports, will be found in the bulletin of the New York State Department of Health (Fig. 9), and also in some of the bulletins of the New London, Conn., Health Department.

Beside the charts divided conveniently for use in plotting data with time as a basis, a bargraph chart is available. This consists of a number of bars outlined in green

HOW MANY BABIES DIE IN THE FIRST TWO YEARS
OUT OF 100 BORN LAST YEAR
ONLY 86 ARE LIVING THIS YEAR
ONLY 80 WILL SURVIVE NEXT YEAR

Fig. 8. Exhibit Model showing statistics in a graphic manner.

Specially Engraved Forms.

Until recently, health officers and others had to be content with the usual decimally divided millimeter papers. Since facts pertaining to health nearly always have to be plotted with reference to time, a special series of papers of convenient size has been devised. These are conveniently ruled into spaces divided into hours, days, weeks, months and years. Such charts are being more and more extensively used by health officials; though, unfortunately, many still do not appreciate their full value. Daily, weekly, monthly and yearly charts can be kept of total number of cases, cases in quarink. On the lower edge of each bar is a scale dividing it into 100 parts. This makes it easy to plot percentage charts or comparative bars showing the mortality or morbidity of various groups or classes.

"Ratio" Paper.

Another especially interesting form of paper is ruled regularly for time, but with rulings spaced logarithmically in the other direction. When comparing very small quantities with larger ones, as for instance the deaths from a disease with the population over a long period of years, or even months, this paper is invaluable. Curves plotted on paper ruled ordinarily are apt to be misleading. This will be readily seen if a definite example is cited. For instance,

*Preliminary Report Joint Committee on Standards for Graphic Presentation. American Society of Mechanical Engineers.

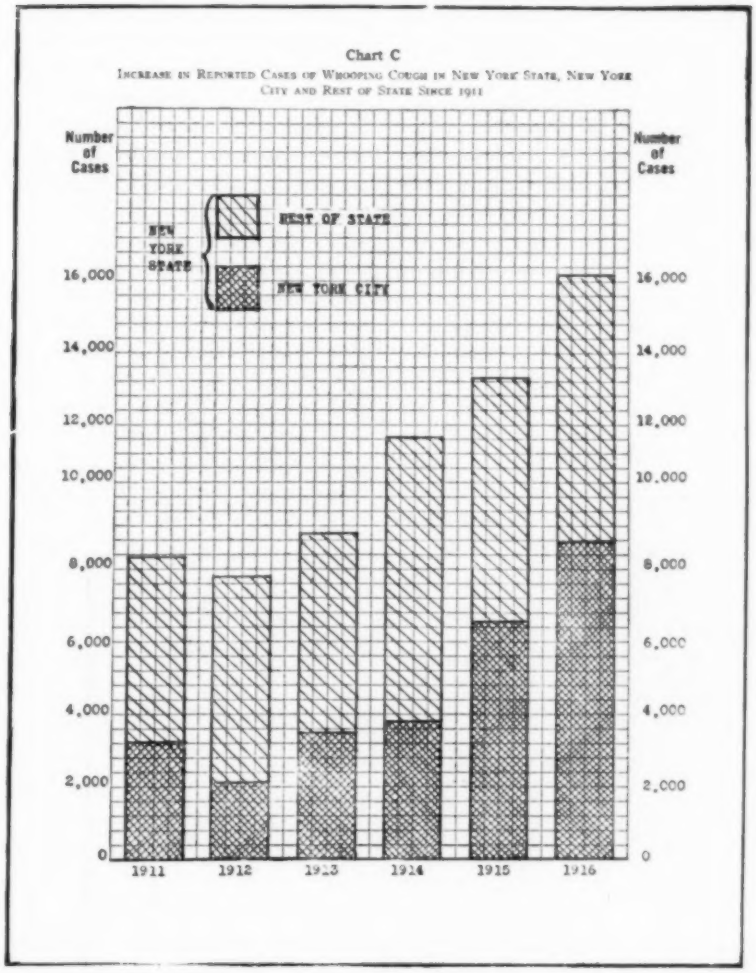


Fig. 9. The use of ruled paper to save time in drawing bar charts of various lengths. If the ruling had been in blue ink and the lines were drawn in black, when the zinc cut was made, the blue lines would have disappeared, leaving the bars to stand out more clearly. This is reproduced from the back cover page of the New York State Department of Health's, "Health News" for March, 1917. The bars fit typewriter spacing.

suppose the number of deaths from tuberculosis during the last year to have been 100 and this year to have been 125. The population of the city, let us suppose, is 100,000 and has increased during the year 10 per cent. The rise in the curve of population during this period will be 10,000 spaces, and the rise in the curve of deaths would be twenty-five spaces. It will thus seem that while the number of deaths has increased it has not increased nearly so fast as the population. The slope of the

population curve would be far steeper than that of the death curve. As a matter of fact, of course, this is not the case. The number of deaths has increased more than the population has in proportion. This would be shown at a glance if this logarithmic paper was utilized. Here the size of the item to be compared is thrown out and only the percentage increase or decrease is taken into account. Thus any two curves having the same slope are always sure to be increasing at the same rate. This is the only safe paper to use if it is desired to compare the rates of change of very small items, with larger ones on the same sheet.

Appropriation Chart.

Many health executives in common with those in business lines are puzzled to know just how they stand, when working with a fixed appropriation but variable expenses, and how to make purchases wisely and still keep within their appropriation. Failure to provide for this has often resulted in the return of an unexpended balance to the treasury, or in an over-expenditure of the appropriation. There is shown herewith a chart (Fig. 10) which is very simply made and by which it is easy to tell at any time, with conditions remaining as they then are, how much money remains which can be devoted directly to purchases.

Suppose, in the chart shown, the appropriation was $17,000. Suppose also that there are running expenses for salary and office costs amounting to $8,000 per year. A line is then drawn from the point marked 0 on January 1st to the $8,000 point on

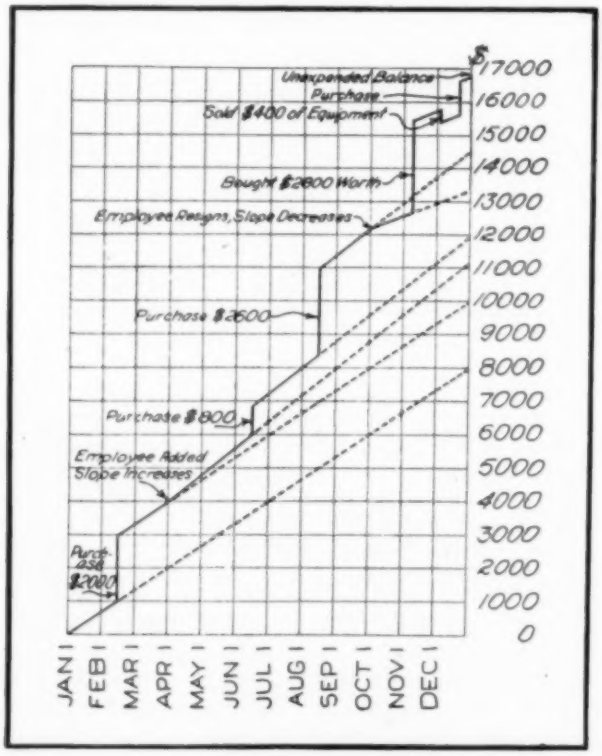


Fig. 10. Appropriation Chart.

December 31st. Suppose, for example, in the middle of February, a $2,000 purchase is made. In this case, the line is drawn vertically $2,000 high at February 15th and from the top of this another sloping line is drawn parallel to the first. This indicates that there has been used of the appropriation $10,000, and if office expenses and salaries remain the same, there will be but $7,000 available at the end of the year.

Another purchase of $2,600 is made about August 15th, but on October 1st, an employee who receives $40 per month resigns so that the slope of the running expense line decreases. Further debts amounting to $2,800 are contracted during early November. During the first week of December, $400 worth of old equipment is sold, which is deducted. This scheme can be carried out indefinitely so as to show the actual

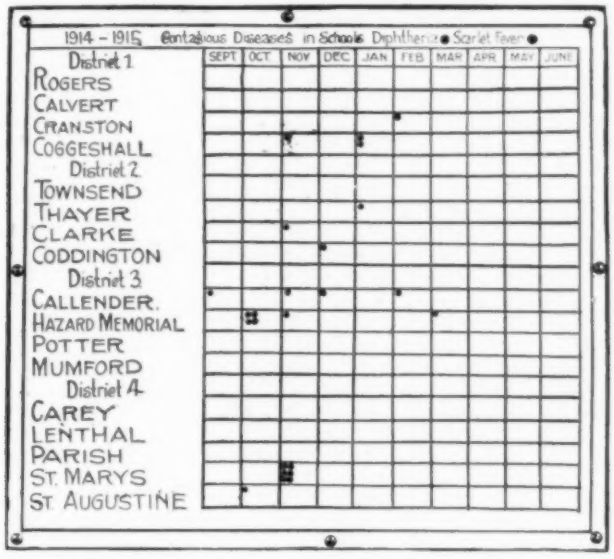


FIG. 11. Chart showing contagious diseases in schools used in Newport, R. I.

It so happens however, that on April 1st, a new employee is added. This employee received $133 per month or approximately, $1,200 for the remaining nine months. A point on the December 31st line $1,200 above the $10,000 line is located and a new line is drawn with a steeper slope, starting at April 1st and involving all the office expenses and salaries including the new employee's salary. About June 15th, $800 more of material is purchased and another parallel line is drawn, indicating that approximately $12,000 has been spent and only $5,000 still remains to be utilized.

condition of any appropriation at any given time.

The use of a simple diagram like this, involving only a minute's time whenever important purchases or changes in personnel are made, will save considerable embarrassment and will tell more at a glance than a set of books would.

The writer is indebted for this suggestion to Mr. F. J. Schlink, Associate Physicist of the United States Bureau of Standards, who first mentioned it in an article in Industrial Management for March, 1918.

Mechanical Methods of Making Charts.

Health officers have unfortunately little time for drawing charts, except in the larger cities where an adequate clerical or drafting force is available. There are however, some mechanical ways of preparing charts which require no special skill and take but little time.

Charts are sometimes kept with pins instead of being drawn carefully in India ink or less carefully in pencil. In this case, the chart is mounted on the same type of mount as that recommended for maps. Map cord is used and also pins, the pins being stuck in as each point is located. This is a very useful expedient on charts which have to be kept up daily and particularly on large charts.

In Newport, R. I., the health officer keeps a chart (Fig. 11) of the number of children out with a contagious disease from each school. The chart is ruled with spaces for the names of the schools and the days of the month. Pins are stuck into the spaces thus formed, the number of pins indicating the number of cases in that school on that date and the color of the pin indicating the disease.

Still other devices have been prepared which are even more mechanical. By utilizing these devices a health officer can, in a minute or two every morning, summarize graphically the day's reports. For instance, there is a mechanical bar chart (Fig. 12). This consists of a board of the map mount composition with a number of spring rollers at the left. These spring rollers are concealed behind a name plate, in which is inserted the names of the various diseases or other items which are being charted. Through a slit in the board, tapes of celluloid, which are attached to the spring rollers, can be pulled out to any length. At the end of each tape is a needle point which can be inserted at the proper place, so that the tape makes a bar of appropriate length.

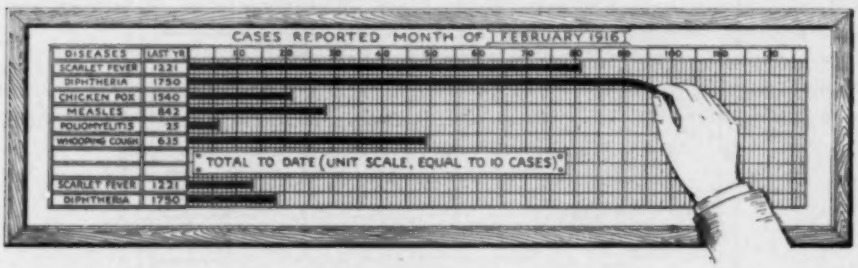


Fig. 12. Mechanical Bar Chart. This is about three feet long and hangs on the wall.

Composite bar charts containing graduated tapes of three or four respective colors are also available. These, too are provided with needle points and work after the manner of small shade-curtains. With this, it is possible to prepare, at a minute's notice, large size wall charts similar to the bar-graph style described previously.

Quarantine Meter.

An interesting device for predicting the date of quarantine expiration, or for follow-up work of every type has recently been prepared. It could appropriately be called a quarantine meter (Fig. 13). This consists of a box about fourteen inches square with a glass front and scale. Through an opening in this scale can be seen an endless tape, on which is printed a calendar

showing every day in the year. The endless tape can be moved by a small knob. On the scale are arrows pointing to the endless tape, so as to indicate periods of one, two, three, etc., weeks up to eleven weeks and ten, thirty and sixty days respectively. By setting today's date at an arrow at the left hand, it is possible to predict in advance, the exact date which comes at the end of any period. This device was suggested to the writer by an entirely different form of quarantine meter used by Dr. A. J. Chesley, Director, Division of Preventable Disease of the Minnesota State Board of Health, in his own work. It should be of considerable use to health officers who have daily to compute the duration of incubation and quarantine.

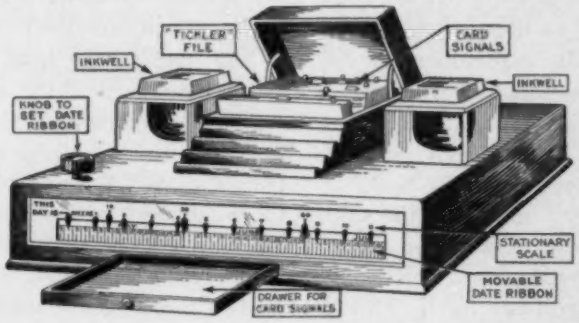


FIG. 13. Quarantine Meter. This is about fourteen inches square and designed to be set on the desk.

The Open Air School.—It is not so long ago that the first open air school was introduced. In fact the first open air school was established in Charlottenburg, near Berlin, in 1905. The first open air school in this country was opened in Providence, in 1911. Today there are over 700 open air schools throughout the United States.

The purpose of the open air school is to build up the health of delicate children who are underfed, and anæmic and inclined to be tuberculous. At the same time, the plan is to educate the children in the normal way. For the open tuberculous case, a hospital is recommended. Children who are to benefit from the open air treatment should have at least two or three years of the cure. It is important that the children be adequately protected against cold by having proper clothing. For the best interests of the child, luncheons should be furnished in the school, and regular rest hours should be provided. The work in the school should be followed up by education in the home, through the medium of the school nurse. It is also important to have teachers who are particularly sympathetic and pleasant, yet who can maintain discipline readily.—Carrie B. Jackson, *Outdoor Life*, August, 1918. (*M. P. H.*)

Nearly 1,000,000 boys and girls throughout the nation have now been enrolled as Modern Health Crusaders, and recruiting to increase this membership to still greater numbers will soon begin by the National Tuberculosis Association, under whose direction this movement is conducted. The Crusade centers about a simple but fundamental program of health "chores," on the part of children, and enlists the rising generation of the nation's citizens in a better understanding of individual and public health essentials. (*D. G.*)

TRANSPORT SANITATION.

MAJOR CHARLES W. BERRY,
106th Infantry, Surgeon, U. S. S. President Lincoln.

THE problems in preventive medicine presented by a ship engaged in conveying troops are not new to the student of hygiene, and simply serve as an illustration of how easily and rapidly communicable disease may be disseminated whenever a large number of human beings are obliged to live in close and intimate contact for a given period of time.

Each and every inmate of the ship, as far as we know, may be the carrier of some pathogenic germ, which may find suitable conditions for its growth and development in the nearest person.

The steps taken to prevent the evil results, following the necessary crowding, and close personal contact among the men on a transport, must take into consideration the actual paths taken by the disease germs from one person to another, and then establish measures to put up a barrier on the different routes, or at least make the transmission a more difficult one.

A measure which naturally presents itself is the removal of any man who may harbor disease germs from the body of troops, so that the process may spread no further. This is done as a matter of course, when the disease can be recognized, but the difficulty lies in the fact that some of our more dangerous carriers give no outward signs that can be detected during a rigid physical examination, and the real condition can only be ascertained by bacteriological and other tests not available at the time. Another factor to be considered is the fact that most of our communicable diseases have distinct periods of invasion and incubation during which time the personal history of the man is the best guide to his future condition.

It is recommended then that the first step in conserving the health of troops aboard a transport should be a thorough physical examination of every officer and man, conducted by experts, before boarding ship, and that the medical officer accompanying the unit furnish a list of all who have been in contact with, or recently recovered from any illness.

All whose names appear on these lists, together with others detected during the examination are to be considered as a separate problem. No man, however slight his illness or indisposition, should start the voyage in the same quarters with the well troops.

This precaution to be of any value must consist of real work, and the time and effort expended will be well repaid when such is the case. The examination given at the start of the present voyage simply illustrated how little reliance can be placed on such tests when not properly conducted.

After troops are on board ship, a routine should be adopted that would insure that once a day every man would be looked over by a physician and questioned as to his condition, giving special attention to all food

handlers. Slovenly methods and opportunity given to evade such examinations will be sufficient to give a false sense of security, and prove a menace to all.

Pathogenic bacteria gain access to the human body chiefly by inhalation, by the intestinal tract, and through mucous membranes and lesions in the skin.

Invasion by inhalation supposes disease germs to be floating in the air, perhaps free or attached to particles of dust. This only happens under unusual living conditions, where indiscriminate coughing or sneezing is going on, or where much dust is constantly being raised by the tramping of feet or improper methods of cleaning in closed spaces.

Invasion through the skin can take place in various ways, among which the most common are a wound, or through the medium of an insect. The measures that can be adopted to check such method of invasion are obvious.

Invasion through the intestinal tract or mucous membranes, which are the usual paths of infection, requires that the germ be first carried to the mouth or membrane in some manner, most often by the hands or through the food or other inanimate objects.

It is definitely known that most of the pathogenic bacteria which affect men can be found in the secretions of the body; namely, discharges from the nose and throat, saliva, urine and fæces. It has also been shown that there is a constant interchange from person to person through hands, foods and inanimate objects, of their secretions, and that such interchanges are immensely increased when a number of persons are crowded together for any length of time.

Another factor to be taken into consideration with the above is the length of time such bacteria can live in an unfavorable environment outside the body and also maintain their virulence, although in such crowded quarters as obtain on a transport they would probably be renewed often enough to be dangerous.

Measures needed to combat these souoces of infection do not receive as much attention as those directed toward a wound, bad smell, or cloud of dust, because the method of infection is not preceptible to us without special tests, and it is not uncommon to find the entire matter overlooked.

A little thought given to the subject will make clear how easily the hands, and from them food, or inanimate objects are contaminated by body secretions, and how in turn other hands carry them to mouths and susceptible mucous membranes. The spitting nuisance, defective personal hygiene, and general lack of cleanliness are factors to be considered with the above.

In the consideration of measures that may be taken to meet such conditions, it is irresistably brought home to us, that if we could keep all hands and everything that came in contact with them absolutely clean, nothing further would be needed, and this is true, the real question being in what way can this be accomplished:

Under service conditions surgical cleanliness could not be obtained, nor continued, nor is this necessary, as ordinary precautions obtainable by anyone will give very good results.

We will take up this question commencing with the quarters occupied by the men, which in transport ships are usually in the hold, poorly lighted and ventilated and hard to keep clean.

The tiers of berths in the compartments should be so arranged even at the sacrifice of some space, that there will be a clear passage about two and one-half feet wide extending around the four sides of the room. This does away with all corners for the collection of dirt and rubbish, and assists greatly in cleaning.

Framework of berths made of steel tubing are preferable and take up less room than those made of wood, are cleaner, and give greater fire protection.

All surfaces in compartments should be painted in light colors and electric bulbs placed so that when needed for cleaning or inspection, abundant light will flood every corner. The lightest compartment is always the cleanest one. Floor of sleeping compartment should be covered with some cement composition, that will not crack or become slippery when wet. A light color is preferable.

Electric fans should be placed at each corner of the compartment, so directed as to keep up a constant circulation of air around the room, eliminating all dead spaces and avoiding any direct draught on the berths.

This measure with the aid of ventilators and wind sails from the deck would provide adequate ventilation.

Compartments should be kept clean in the following manner:

Once daily roll up all of the lower berths and sweep the floor, so as to remove all rubbish which may clog up drains. Follow this by scrubbing well with soap and water and then dry thoroughly with well wrung out mops. One or two sweepings will keep the place clean until the following day. Containers should be provided for paper, rubbish, etc., that would otherwise be deposited on the floor.

Once a week all the framework and sides of the compartment should be cleaned in the same manner, and after each trip all canvas berths should be removed, scrubbed, dried in the sun, and replaced.

Bedding and clothing should be aired in sun as often as possible. Port holes should be kept open when permitted by service conditions to admit light and air. A small well-ventilated compartment at either end of ship, having a separate entrance, should be reserved for isolation purposes.

The addition of disinfectants to the water used for cleaning is not recommended. The bactericidal value of the solution is doubtful, and any odor in a close compartment is a disadvantage, giving a sense of false security. It is better hygiene to rely on perfect cleanliness, and not try to cover one odor with another.

Our daily cleaning should not end with the quarters occupied by the troops, but should extend to all parts of the ship, giving special attention to mess rooms and kitchens, where food is handled and prepared. On account of the congestion, the daily cleaning is a matter of carefully worked out routine, the men being moved from deck to quarters and back again, as the different parts are being cared for.

Some portions of the ship, as kitchens and mess rooms, require careful cleaning after each meal, other portions like the latrines require constant attention and these details should be carefully worked out by the one responsible for the sanitary condition of the vessel.

The latrines on board a transport are a constant source of danger, being used to their extreme capacity at almost all hours, the rate being about twelve men per minute. Those on board are of the trough pattern with intermittent siphon flushing. There is a constant tendency for the soil pipe draining these troughs to become obstructed, and cause the troughs to fill, and then have their contents spill over the floor of the apartment with each roll of the ship.

With such constant use a steady flush would be preferable, but this requires extra pumps to furnish the water required. The openings from the soil pipe to the trough should not present any obstructions to a steady flow, and the pipe should be of large enough diameter to readily carry off all the contents of the trough. There is also a tendency for the sides and top to become soiled with fæcal matter and a deeper trough, egg shape, with large end down, containing some water all the time yet flushed completely at each discharge of the siphon, and deep enough so that its contents would not slop over with the rolling of the ship, would answer the requirements better.

To maintain cleanliness in such an apartment under service conditions, requires a thorough scrubbing of floors, troughs, etc., once a day, using hot water and soap—a man should be kept constantly on duty after this to see that the drains do not become obstructed and the place is kept in order.

It is a wise precaution to place a sentinel at the entrance to prevent men from carrying anything into the apartment, thus preventing the throwing of newspapers, waste, etc., into the drains. Suitable toilet paper should be furnished in each latrine.

The serving of food presents a problem which must be worked out for each unit, the system now in use being to form lines of men each man carrying his mess kit. These lines pass before a table where the food is given out by men placed behind the large containers used for that purpose.

All food handlers are sources of danger and should constantly be under the observation of the medical officers.

An adequate supply of boiling water should be on hand after each meal for the cleansing of mess kits, and measures taken to see that every man uses and drinks from his own utensils only.

Personal hygiene should receive close attention, bearing in mind that in the best of sanitary surroundings disease may be easily conveyed by the hand to mouth route and that this path is probably the most common one under any circumstances.

Available shower baths should be so used that the entire command is bathed in turn as often as possible; and the advantage of personal cleanliness should be taught on every occasion. If a basin contrived in such manner as to always automatically contain a small amount of clean water, could be placed outside of each latrine, and each man leaving there be com-

pelled to wash his hands, a great advance would be made. If the same thing were in reach of the mess line and each man had to wash his hands before he handled his food, the hand and mouth route would do a very poor business.

The chances of washing clothing on board a transport are very slight, and each man coming aboard should have had a bath and wear clean underwear, besides having one or two changes in his possession.

All the troops on board should be divided into units of convenient size, and suitable deck space assigned to each at different times during the day, so that each unit will have opportunity for physical drill and exercise at least twice during the twenty-four hours.

Drinking water and food supply are looked after by the transport service.

Briefly summarized, then, the hygienic requirements aboard a crowded transport are:

1. A rigid physical examination and careful scrutiny of the personal history of each man before going on board ship.
2. Isolate all sick, carriers or suspects.
3. Daily inspection to detect other cases, followed by prompt insolation.
4. Sanitary surroundings.
5. Personal hygiene.
6. Blocking all routes of infection.
7. Sufficient exercise.

HOW TO WRITE NEWSPAPER COPY.

Prof. Charles E. Bellatty,
School of Business Administration, Boston University.

HEALTH officers, social workers and others who appreciate the value of newspaper publicity in furthering good causes should do their part to make "copy" agreeable to the eye of the editor as well as interesting to his readers. Many a good cause loses headway when a busy editor throws a carelessly prepared manuscript into the waste basket. The following suggestions for making clean copy are offered by an experienced publicity man and are well-worth remembering.

Whenever possible submit typewritten manuscript.

Double-space or triple-space between the lines.

Leave three inches or more blank at the top for a headline.

Leave a half-inch blank space at the bottom of each page for convenience in pasting.

Do not carry a sentence from the bottom of one page of manuscript to the top of the next page.

Avoid breaking words at the end of lines.

Number each page in the center at the top and draw a half circle under the number.

When you write in long-hand print out all proper names.

Be sure to spell all proper names correctly and to supply the initials necessary to identification.

Use paper of standard typewriter size or smaller.

Sign your name.

If you write headlines put action into them.

When you have time rewrite your copy: Cut out unnecessary words and make your opening paragraph as interesting as you know how to make it.

Write only on one side of the sheet.

After the story appears thank the newspaper for printing it and try to avoid criticism if typographical errors or editorial mistakes are apparent.

Remember that the newspaper wants items when they are newsy.

THE CHILD'S TEN COMMANDMENTS TO PARENTS.

AND a new voice said to the people, I am the generation yet unborn who by being well born and properly cared for shall lead the race out of the bondage of disease to a healthier, better and happier life.

Thou shalt have no temporal gods before me.

Thou shalt not bow down thyself before false images of temporal pleasures or become bound by overwork or by intemperance in thy food, thy drink or thy habits, for thy God is a righteous God and visiteth these sins in the form of physical weakness upon us thy children.

Thou shalt not take my name in vain or think lightly of me in thy younger days for thou must begin when a boy or girl to prepare for my coming, by building a strong body and keeping it free from harmful substances and the taint of disease.

Remember the pre-natal days and keep them properly. Other days shalt thou do hard labor if need be, but these are the months that are mine, and thou shalt seek advice of thy physician and so conduct thy life and that of thy family that I may become strong and not afflicted in these days of my coming.

Honor thy sons and thy daughters that our days may be long upon the earth; when we are babes give us the food which nature intended us to have and see that such hygienic measures prevail in thy house and in the community where thou livest that we shall not be menaced by disease.

Thou shalt not kill our confidence in thee by telling us lies about ourselves, and when at an early age we begin to ask from whence we came, thou shalt answer the questions truthfully and volunteer no further information.

Thou shalt not make it easy for us to commit sexual excesses by neglecting to tell us at the time of puberty what changes are to come upon our physical beings, and at the time of early manhood or womanhood thou or thy trusted friend shall explain to us individually the nature of those diseases which may inflict suffering upon us and upon those we love, explaining also the rules of personal hygiene, which will enable us to avoid all excesses that would make us in our generation unfit for parenthood.

Thou shalt not steal our peace of mind by failing to inform thyself and consult with us frankly upon the problems involving the proper development of the body, the mind or the social and religious conscience.

Thou shalt not bear false witness to what thou wouldst have us believe by leading a life which is unhygienic, empty of serious thought or immoral.

Thou shalt not covet ease for thyself or thy children thereby forgetting the duties of every person as a citizen and a neighbor.

C. E. TURNER, C. P. H.

EDITORIAL SECTION

AMERICAN JOURNAL OF PUBLIC HEALTH
EDITORIAL OFFICE: 126 MASSACHUSETTS AVE., BOSTON, MASS.
A. W. HEDRICH, Editor

Editorial Assistants

A. D. HILLER
MERRILL E. CHAMPION, M.D.
E. R. HAYHURST, M.D.
R. R. HARKNESS
R. P. ALBAUGH, M.D.
DAVID GREENBERG
ARTHUR LEDERER, M.D.
M. P. HOROWITZ
P. M. HOLMES, M.D.

Board of Advisory Editors

PETER H. BRYCE, M.D., Ottawa, Canada
CHARLES V. CHAPIN, M.D., Providence, R. I.
EUGENE R. KELLEY, M.D., Boston, Mass.
J. W. TRASK, M.D., Washington, D. C.
PROF. J. M. ROSENAU, Boston, Mass.
PROF. W. T. SEDGWICK, Cambridge, Mass.
PROF. GEORGE C. WHIPPLE, Cambridge, Mass.
PROF. S. M. GUNN, Paris, France
W. A. EVANS, M.D., Chicago, Ill.

All expressions of opinion and all statements of supposed facts are published on authority of the writer under whose signature they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

NOTICE TO SUBSCRIBERS: Subscription Price, $4.00 a year, in advance, to any point in the United States or its possessions. Single copies, 50 cents. Foreign Countries, 50 cents extra for postage. Canada, 25 cents extra for postage. **Advertisements** accepted only from reliable firms. Fraudulent and misleading advertisements barred. **In Changes of Address** both old and new addresses must be given. **Renewal Bills:** Prompt attention to them prevents discontinuance from the mailing list. As the **Mailing List** for each month's issue closes on the first of the month, changes of address, renewals, subscriptions, etc., must reach us before the first of the month to be effective with that issue. **Copyright, 1918,** by A. W. Hedrich.

SCIENCE AND EFFICIENCY.

The old philosophers especially busied themselves with the science of knowledge and the alchemists and sometimes the holy monks held communication with his Satanic Majesty by delving into the mysteries of chemistry and astrology. Similarly the savants of the eighteenth century and the early experimenters of the nineteenth worked silently like the earliest searchers after truth, rather than as co-workers in the great industries then coming into existence. Professor Brewster, president of the British Association in 1858, lamented the fact that no university in England had any science curriculum, while Pasteur in the sixties in his little laboratory in L'École Normale, in Paris, was ever bemoaning the limited grants devoted to science in France, while Liebig and other German chemists had special provision made for investigation work in the large German universities. The history of the American Public Health Association, outlined in the May number of the JOURNAL, tells an equally eloquent story of the varied fortunes of public health during half a century. Equal to the regrets of Pasteur were the complaints of Sir Oliver Lodge, before an educational conference held in the winter of 1916, with regard to the neglect of the great manufactories, and even of the Army Department in England, to make use of the teachers of technical science through utilizing their knowledge both in industry and war. Today, when the war has become one of machinery and applied science in medicine, it would seem as if nothing were needed to insure the direct application of the methods of science to every phase of human activity, whether private or official. To illustrate by a single example it is usually estimated that 10 per cent of all the typhoid patients die, that 10 per cent of all rural deaths are due to typhoid, and that the greatest number of these occur in persons between fifteen and thirty years. The statistics of the thirty-five registration cities of the United States, with a population of 20,000,000, show that the deaths from typhoid had fallen

6.7 per 100,000 in 1917 as compared with the average of 19.7 for 1907–1911. The biologist and sanitary engineer have thus, within ten years, saved directly 2,600 lives in a single year and 1,560,000 days of sickness and economic loss; yet even where such technical knowledge is being recognized and utilized, it is only necessary to compare for instance, legal fees and the salaries of managers of large industries, with the salaries of chemists, biologists, and engineers in the same institutions, to comprehend that the science which makes efficiency possible is paid for, often less well than is the head mechanic.

Now, it may be objected that the pursuit of science must not be confused with the nerve-racking activities of a business manager in a competitive industry, and that wisdom and the pursuit of knowledge belong only to the Academe where Athene presides; but mediæval scholasticism can no longer supply the needs of modern civilization and the application of science to every branch of human activity amongst any progressive people must be recognized as one of its chief privileges and duties.

What has hitherto been the status of most of the 20,000 municipal medical officers in the United States, or indeed of most state health officials? Appointed through some political accident or reaction, the garnered experience of this whole body of educated public officials is in practice "scrapped" after each election, while the public, the medical profession and the science of public health are all enormously injured. That so much has been done and not so little under the conditions in the past has been the marvel. Not a little of the harm done has been due to the attitude of the scientific teachers in our colleges. They have, partly through lack of experience in public affairs and partly through a scholastic priggishness, stood aloof as teachers only, instead of lending their specialized abilities to diffusing science in its practical application, whether in the industries or in public health. The war has brought all together in their natural relations and it is to be hoped that from now onward it will appear to the scientist as much a public and patriotic duty to have his abilities and services devoted to increasing the vital and social efficiency of the people at home as he is now doing so freely in their application to the work of winning the war. (*P. H. B.*)

INFANT HYGIENE IN WAR-TIME.

Recent studies made by Guilfoy* and Eastman† accentuate the importance of the infant mortality-rate from congenital diseases. During the time when infant mortality-rates have shown such marked reduction in progressive communities, it has been quite evident to those in charge of the work that the reduction has taken place almost wholly in those groups of disease known as diarrhœal, respiratory or contagious and that the infant death-rate from congenital diseases was being reduced little, if at all. Congenital diseases, as a cause of infant deaths, furnish approximately 40 per cent of the mortality under one year of age. The importance of this subject, therefore, demands more definite recognition and action than it has had in the past. In fact, if the infant mortality-rate is to be still further reduced, it is quite evident that the supervision and instruction of expectant mothers or what is known as "prenatal work" must assume a more prominent position than it has heretofore held in public health activities.

This subject is of particular importance at this time owing to the inevitable

*Guilfoy: "The influence of Nationality upon the Mortality of a Community," Monograph Series, Department of Health, New York City.

†Eastman: Health News, State Department of Health, N. Y. "Infant Mortality Statistics in New York State."

reduction in the birth-rate that comes as a by-product of war. A report of the Registrar-General of England—Sir Bernard Mallett—calls attention to the fact that the fall in the birth-rate in England and Wales, based on the figures of 1913, has caused a loss of 650,000 potential lives. Sir Bernard states that they "never dreamed the birth-rate would reach such a level but, serious as is this loss to the coming generations of Great Britain, there is reason to believe that we have suffered less that the other belligerents. Germany has lost in potential lives the equivalent of 4.5 per cent of its total pre-war population or something like two million unborn lives; Austria has lost 5 per cent and Hungary 7 per cent. The present war has cost the belligerents not less than 12,500,000 potential lives." This country has been at war too short a time to compute accurately the effect upon our own infant death-rate, yet it is significant that in New York City alone there have been 2,804 fewer marriages and 410 fewer births during the first six months of this year as compared with the first six months of last year. A potential loss of life in the reduction of the birth-rate would seem inevitable in this country if the experience of Europe can be regarded as a criterion. It is, therefore, of the utmost importance that every effort should be made to keep alive and well the children who are born and in this effort prenatal work, or the prevention of deaths from congenital causes, assumes a place of tremendous proportion.

In this connection attention should be called to Senate Bill 4,782, introduced into the Senate on June 27 by Senator Robinson, entitled "A Bill to Encourage Instruction in the Hygiene of Maternity and Infancy, and to Extend Proper Care for Maternity and Infancy; to Provide for Coöperation with the States in the Promotion of Such Instruction and Care in Rural Districts; to Appropriate Money and Regulate Its Expenditure, and for Other Purposes." In brief, the bill provides for subsidizing the states up to a sum of $10,000 a year each, with the provision of an additional subsidy provided the state raises an equal amount of money to be used for the employment of rural nurses for prenatal instruction and maternity aid. The bill, which was introduced at the suggestion of Miss Julia C. Lathrop, chief of the Children's Bureau at Washington, should have the undivided support of all public health officials, for its passage will conserve child life at its beginning at a time in the history of the United States when such conservation is of the most vital importance.

S. J. Baker, M. D., D. P. H.

THE SANITATION AND SOCIALIZATION OF THE WESTERN PROVINCES OF CANADA.

The history of the American Public Health Association as set forth in the May number of the Journal helps us to visualize not only the progress of the science of sanitation during forty years, but also the settlement and development of the Western States then only begun, since the Union Pacific Railroad reached the Coast only in 1869. The history of the Western Canadian Provinces is still shorter by twenty years, and more in the matter of settlement, yet in the matter of government the large infusion of Eastern Canadians in the early years carried established forms and existing methods with them. The adaptation of such to the conditions of sparse settlement has proved an interesting study and in nothing more than in matter of public health. The Manitoba Board of Health was originally made up of five members, each located in some one of the five areas of the Province which they were supposed to supervise in emergencies. Later a Provincial bacteriologist gave such assistance as was possible with his many other duties. Three years ago a complete reorganization has resulted in the

appointment of a minister of health with a secretary, an epidemiologist and well-equipped laboratory, with its director as chairman of the Board; while throughout the Province, through the enthusiasm of the chief executive officer in making local inspections, addressing school boards and other public bodies, applications are being made as fast as they can be filled by rural districts for the appointment of public health nurses. Thus not only are school children examined, the homes especially of recent immigrants visited, and vital statistics improved, but the social contact with officers above the jealousies and recriminations of small communities has a further direct uplifting socializing influence. In the next west Province of Saskatchewan, still sparser in settlement, its great area and purely agricultural character has developed legislation, probably the most advanced in its special application to rural needs, of any Province in Canada. With a population of 750,000 distributed over two hundred and fifty million square miles, Saskatchewan has had to deal not only with difficult fiscal and educational problems, but has also to care for the lives and social welfare of a people, a very large proportion of whom are foreign both in language and customs.

Physicians were and still are relatively few and serve areas often of a hundred miles square with till recently almost no central hospitals. Fortunately public health work began with a commissioner of health, an all-time officer, and both from his enthusiasm and the broad character of the duties gradually assumed, he has developed public health in Saskatchewan more closely into a department of government than in most other Provinces of Canada. His duties as inspector of public institutions have brought under his care the social needs of the rural population and such have become his special care. To assist physicians the idea of district hospitals has grown until some thirty rural areas, containing several counties, have applied and, after investigation as to convenience of site and buildings, have received permission to establish such hospitals aided with government grants, to which all physicians of the area may send patients, while a head nurse, with one or more assistants, not only manages the hospital, but also become public health visitors in the district. Thus physical and mental defects, so generally neglected, will be detected early and their correction ensured. The system is resulting directly in the establishing of institutions for the feeble-minded, deaf and dumb, and for the tuberculized, while broad legislation for dealing with venereal diseases is being put into effect through the hospital development.

Still more recent development is taking place in Alberta, a province of equal area, where a newly appointed minister of health is developing the idea of public health districts with all-time Provincial medical officers and visiting nurses for each; while a laboratory and the management of public institutions is giving an importance to the work scarcely surpassed by any older department of government.

Probably the most interesting, because the most difficult work, is seen in the Coast Province of British Columbia, with more than 600 miles from east to west and a yet longer coast line. This Province of mountains contains over 365,000 square miles, has three great mountain ranges running north and south with innumerable valleys, mostly narrow, but at times spreading out into great areas awaiting settlement and development. Barring fruit developments in the inland warm valleys and ranching in the dry belt, most of the population is gathered in coast towns and great mining camps, lumbering villages and fish cannery stations, the latter having temporary populations; but all have the special difficulties of a great floating population. In the early years of the Province wise provision was made for a few provincial hospitals, hundreds of miles apart in the great river valley districts where physicians were located and paid by govern-

ment salary and such fees as they could collect, and these have formed centers for developing district public health work. Much of the coast work has to be reached by the coastal steamers of the chief transportation companies; while the medical officers of the large mining centers and those settlements or some port with a hospital and paid by the Indian Department to attend the Indians of a district, extend their work in coöperation with the Provincial Board of Health directly under the Minister of the Crown who administers the public institutions.

What perhaps makes all this western public health development most distinctive is the close relationship which exists in the minds of the government executive between the public health service and the charitable institutions, which in the old Eastern Provinces and States with long established institutions have hitherto been looked upon as a wholly separate function and duty of government. *(P. H. B.)*

WHY YOUR OCTOBER JOURNAL WILL BE LATE.

In order to give early publication to the papers of the next annual meeting, publication of the latter will be begun in the next issue of the JOURNAL. As these manuscripts must go to the printer later than the customary date, the October issue will be delayed in reaching the subscriber. It may even become necessary to combine two issues of the JOURNAL in order to compensate for lost time.

The difficult industrial conditions resulting from the new draft regulations are emphasized in the printing industry. Furthermore, the mails are slower than usual. We therefore solicit your patience when your JOURNAL comes late.

Editor.

◈

The Framingham Sickness Census.—Monograph No. 2 of the Framingham Community Health and Tuberculosis Demonstration, entitled "The Sickness Census" has recently been published. The work was undertaken for various reasons, among which were (1) the desire to obtain some idea of admitted illness in the community, and also very valuable general information; (2) to be able to compare the results of a similar survey at the end of the demonstration, with those found at the beginning. The sickness census was well advertised, and was conducted by insurance agents and nurses over a period of one to three weeks. Altogether 1,455 families were visited. This corresponded to 6,582 people. The workers were asked to include all minor ailments as well as serious sickness in the census.

Four hundred and seven cases of illness were found, a rate of 6.2 per hundred population. Some of the causes with percentage of total sickness were as follows: Typhoid fever 0.2 per cent, measles 0.5 per cent, scarlet fever 0.5 per cent, tuberculosis of the lungs 2.2 per cent, other forms of tuberculosis 1.7 per cent, rheumatism 6.6 per cent, headache 2.5 per cent, heart diseases 8.6 per cent, colds 13.5 per cent, bronchitis 3.9 per cent, "cough" 3.9 per cent, tonsilitis 2.2 per cent, diseases of the stomach 5.9 per cent, diseases of the kidneys 2.7 per cent, pregnancy 3.2 per cent.

Over 54 per cent of the sick were unable to work. A relatively high percentage of the sick—81.1 per cent—had a physician in attendance. From the point of view of age distribution, the older age groups showed unusually large sickness rates. Females were more affected than males, but if those illnesses associated with women be disregarded, their illness rate was 64.6 per thousand population as opposed to 53.1 for males. *(M. P. M.)*

In Memoriam

DR. EMMANUEL P. LACHAPELLE.

Born at Sault au Rècollet near Montreal in 1845, Dr. Lachapelle, an Honorary Member of the American Public Health Association and President of the Provincial Board of Health of Quebec, passed away at Rochester, Minnesota, on August 2, 1918, after an illness of over a year, full of years and honors, as the first physician amongst his many distinguished French Canadian confreres.

Educated in the schools and colleges of his own Province, Dr. Lachapelle for more than fifty years illustrated not only the highest ideals of his profession, but also, in a peculiar sense, the best instincts of a gentleman of the old French school.

Fortunate in having abundant means, Dr. Lachapelle devoted his early life not alone to establishing an enviable reputation as a medical practitioner, but also in advancing the scientific interests of the medical profession of his Province, and the academic interests of Laval University of whose medical school he was for some years the Dean. He was chiefly instrumental in placing Notre Dame Hospital on a high plane of efficiency and as chairman of the Medical Council promoted the efficiency of the whole profession in his Province.

But to the members of the American Public Health Association Dr. Lachapelle was best known for his work as a sanitarian. The Provincial Board of Health of Quebec was organized in 1886, the year after the memorable Montreal epidemic of smallpox. This Board organized on similar lines to other state boards of this continent has continued under his paternal guidance to develop along the most modern lines scientific work of inestimable benefit to the Province of Quebec. As President of the American Public Health Association in 1896, and as a member of the Executive, Dr. Lachapelle brought to its annual meetings his wide experience and mature judgment and it has only been in recent years when, as one of the city commissioners of Montreal his energies were taxed to the utmost, he was unable to give as steadily the benefit of his wise counsel.

As the leading member of the French Canadian profession, Dr. Lachapelle was recognized by the profession and government of France, which made him a *Chevalier de la legion d'Honneur* and *Un Officier de l'Academie de France.*

But with all his honors, worthily won, Dr. Lachapelle was ever to his friends the same modest, lovable embodiment of all that is implied in the term *un gentilhomme français.*

His energy was never flagging, and with unalterable purpose he strove for the realization of his ideals, the socializing and uplifting of his beloved French Canadian countrymen.

He was of the Gallican school and, while conservative in his methods, ever strove with clear vision to modernize a people in some measure hampered through race, language, and locality from benefiting through the energizing influences of a continent, fermenting with the bounding life, which millions of immigrants brought to its shores during a century.

How greatly he labored and how much he accomplished is known best to those who have seen his work during half a century. His private benefactions, his public gifts, his boundless patriotism earned for him the love of all; while many, and not the least his old companions in arms, will long cherish his memory. With them we would lay on his tomb *immortelles*, fragrant with perfume, to commemorate the life singularly sweet of *un homme sans peur et sans reproche.*

—Peter H. Bryce, M. D.

ASSOCIATION NEWS

By A. W. Hedrich, Secretary.

Dr. Frankel Addresses National Fraternal Congress.—On August 27, Dr. Lee K. Frankel, Treasurer of the Association, addressed the delegates of the National Fraternal Congress at Philadelphia, concerning support for the public health movement. Dr. Frankel pointed out that death-rates had been so much reduced through the activities of health officials, that it was possible to insure at much lower rates than formerly. Although insurance organizations, both old-line and fraternal, have greatly benefited through public health propaganda, they have in the past done relatively little to promote this cause. It was urged that inasmuch as further reduction of death-rates was of great importance to insurance companies, that the latter should lend their aid.

Dr. Frankel's remarks were very favorably received, and the executive committee of the Congress was instructed to study the whole matter and to formulate a plan of coöperation. As the membership of the various fraternal organizations represented in the Congress is very nearly 7,000,000, the support of the fraternal companies should have tremendous influence.

A more complete report will be rendered at the coming annual meeting.

♣

Popular Health Journal.—The Secretary of the Association, recently conferred with the Editors of the *National Geographic* and *Popular Science* magazines, with the view to obtaining information concerning the value of a popular health journal.

Both editors believed that such a magazine could be made highly successful, and could accomplish much good in disseminating information concerning health.

The considerations of greatest importance at the present are the securing of an initial financial nucleus and the obtaining of print paper. The War Industries Board is at this time greatly restricting the use of print paper and is opposed to the institution of any new publications.

A committee report will be submitted to the Board of Directors at the annual meeting.

The Secretary wishes to publicly acknowledge the courtesy of Mr. Gilbert Grosvenor, Editor of the *National Geographic Magazine*, and of Mr. Waldemar Kaempffert, Editor of the *Popular Science Monthly*.

♣

Thanks to Dr. Kober.—The welfare of the Association depends very largely upon the goodwill of its members. Very few new members come who have not been introduced by one of the present members. Among those to whom the Association is deeply indebted is Dr. George M. Kober, of Washington, D. C. A short time ago Dr. Kober sent us the names of nine of his best students in hygiene at Georgetown University, together with a check covering the first year's membership dues.

Another instance of generous service of this type was afforded when Dr. J. D. Robertson, Health Commissioner of Chicago, a few months ago sent seventeen new subscriptions to the Journal.

HELP WANTED

In order to help relieve the shortage of sanitarians due to the war, free help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the first of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Wanted: Assistant bacteriologist and pathologist for laboratory of City Department of Health. Young lady with technical training would be acceptable. Salary, $1,200 per year. Address Dr. R. L. Carlton, Health Officer, Winston-Salem, N. C.

Wanted: General inspector of foods and food handling establishments for City of Winston-Salem, N. C. Veterinarian preferred. Address R. L. Carlton, Health Officer, Winston-Salem, N. C.

Wanted: Chief chemist in Ohio Department of Health. Experience in drug work, feeding stuffs, and fertilizers required. Salary, $2,200 per year. Position to be filled for the period of the war. Address No. 157, V. H. L., care of this Journal.

Wanted: Epidemiologist for Department of Health in Michigan. Salary, $2,000 per year. Address No. 158, N. B. H., care of this JOURNAL.

Wanted: Interne for hospital in Michigan. Exceptional opportunity to gain experience in all branches of medicine and surgery. Salary, $75 per month. Address No. 159, N. B. H., care of this JOURNAL.

Wanted: Chemist to take charge of laboratory of a Connecticut water supply company. Must be qualified to make chemical, bacteriological, and biological tests. Salary, $1,800 per year. Address No. 160, C. H. B., care of this JOURNAL.

Wanted: Graduate veterinarian or other person trained to do milk and meat inspection in southern city near army camp. Salary, $150 per month. Address No. 161, W. D. H., care of this JOURNAL.

Wanted: Deputy commissioner of health in Michigan city. Salary, $3,000 per year. Address No. 162, W. F. W., care of this JOURNAL.

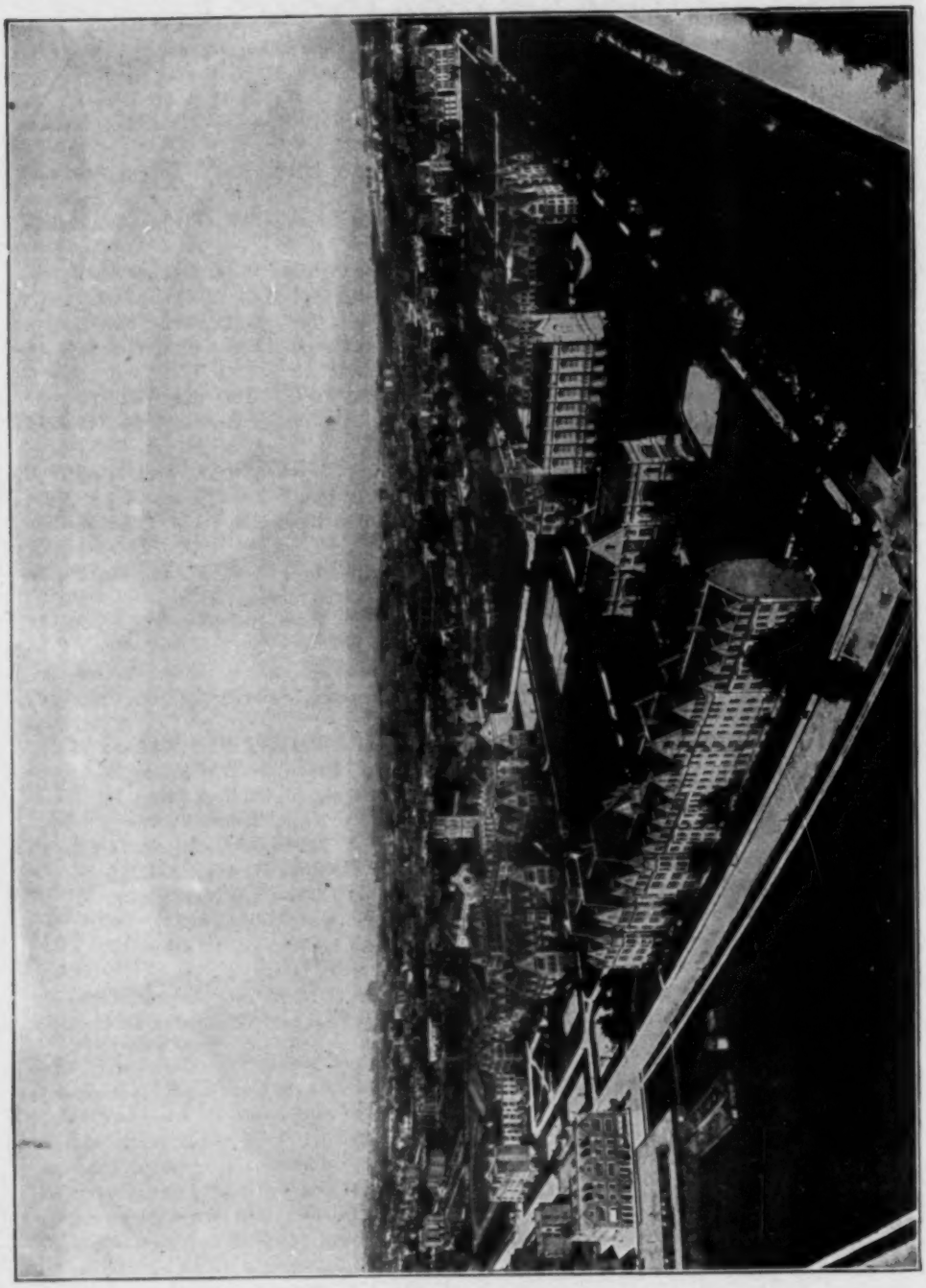
Wanted: Sanitary engineer in Michigan health department. Salary, $2,500 per year. Address No. 163, W. F. W., care of this JOURNAL.

Wanted: Man or woman as Social Service Director in tuberculous families. Salary, $1,500. Good future. Address Anti-Tuberculosis League, 209 W. Twelfth St., Cincinnati, Ohio.

Report on Industrial Morbidity Statistics.—A report of the Committee on Industrial Morbidity Statistics of the American Public Health Association is published in the issue of Public Health Reports dated August 30. Publication is in advance of the annual meeting of the Association, in order that the report may be discussed at the Chicago meeting.

The following were elected to membership in the Association in August, 1918:

W. A. Russell, M. D., Hardin, Mont.
P. H. McCarthy, M. D., Butte, Mont.
Clarence W. Buckmaster, M. D., Yonkers, N. Y.
Ernest S. Bishop, A. B., M. D., New York City.
Preston Alexander Frost, B. S., State College, Pa.
Roland W. Hall, M. D., Jackson, Miss.
Margaret Pierson, B. A., Chicago, Ill.
Eugene G. Peek, M. D., Ocola, Fla.
Robert Hamilton Coats, B. A., F. S. S., Rockleffe, Ottawa.
Wm. R. Warren, M. D., Key West, Fla.
Penn Mutual Life Insurance Co., Philadelphia, Pa.
William C. Fowler, M. D., Washington, D. C.
Elmer Patton Bostwick, Camp Meade, Md.
Guy Wm. Henika, M. D., M. P. H., Madison, Wis.
Oscar Caldwell West, M. D., Sanitary Inspector, Camp Stanley, Texas.
Abraham Resel Hollender, Ph. B., M. D., Linden, Wis.
Bernard Fantus, M. S., M. D., Chicago, Ill.
Wm. Spencer, Sanitary Engineer, Cherrydale, Va.
Alexander R. Craig, M. D., Chicago, Ill.
John V. Fowler, M. D., Chicago, Ill.
G. G. Craig, M. D., Rock Island, Ill.
Joseph F. Nagle, Renova, Pa.
Albert E. Marland, Washington, D. C.
John A. Nelson, Washington, D. C.
Grafton T. Brown, Washington, D. C.
John Shugrue, Washington, D. C.
William J. Corcoran, Old Forge, Pa.
Monterville G. Ewing, Jersey City, N. J.
Charles H. McEnerney, Ansonia, Conn.
Walter Rapapost, Washington, D. C.



University of Chicago. Fifty-eighth and Ellis Avenue.

PRELIMINARY PROGRAMS

OF THE

FORTY-SIXTH ANNUAL MEETING

OF THE

AMERICAN PUBLIC HEALTH ASSOCIATION

▽

CHICAGO, ILL.

OCTOBER 14TH TO 17TH

1918

▽

Official Headquarters: HOTEL MORRISON

UNIVERSITY OF CHICAGO. Fifty-eighth and Ellis Avenue.

PROGRAM OF THE FORTY-SIXTH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION,

Chicago, Illinois, October 14–17, 1918

CALL TO MEETING.

The members of the American Public Health Association are hereby called to meet at Chicago, Ill., Oct. 14–17, 1918. Headquarters are to be at the Hotel Morrison.

Especial attention is called to proposed amendments to the constitution and by-laws of the Association, which will be submitted in accordance with a report of the Board of Directors accepted by the Association, at the last annual meeting. The proposed new constitution as presented by the Committee on Constitution is given below.

The more important of the proposed changes are briefly as follows:

CONSTITUTION.

Article 4 transfers election of the president, vice-president, and treasurer, from the Association to the Board of Directors.

Article 5 transfers the election of a portion of the Board of Directors from the Association to affiliated state health societies, upon a basis to be established by the Board of Directors. The terms of elective directors are changed from three to two years.

Nomination of officers and directors by the Advisory Council is discontinued.

Article 8 transfers the power to amend the constitution from the Association to the Board of Directors.

BY-LAWS.

Article 1. Active members are designated by the term *fellow*, but their status is otherwise unchanged.

A new type of membership is created; viz., associate membership. Dues are $1.00 annually, collectable through affiliated local societies. Subscription to the JOURNAL is not included, but other printed matter may be sent.

Dues of sustaining members are increased from $25 to $50.

Article 3 defines the powers of the Board of Directors in somewhat greater detail, and increases the quorum from seven to ten directors.

Article 4 increases the Executive Committee from seven to nine members, by increasing the number of elective members from four to six. The terms of the latter are to be three years instead of one as heretofore, and are to expire in rotation.

Article 6 transfers the power to amend by-laws from the Association to the Board of Directors.

Additional amendments have been offered to the Committee and these will be submitted for consideration at the annual meeting.

The proposed constitution and by-laws including amendments follow:

AMERICAN PUBLIC HEALTH ASSOCIATION.

Constitution and By-Laws.

ARTICLE 1.

Name.

The name of this Association is The American Public Health Association.

ARTICLE 2.

Object.

The object of this Association is to protect and promote public and personal health.

ARTICLE 3.

Membership.

All persons and organizations in the United States of America, the Dominion of Canada, the Republic of Mexico, the Republic of Cuba, and other American nations, in sympathy with the object of the Association, are eligible to membership; provided, that honorary members may be elected without regard to their place of residence.

ARTICLE 4.

Officers.

The officers of this Association are a president, three vice-presidents, a secretary, and a treasurer. The president, vice-presidents, and treasurer shall be elected by the Board of Directors, and shall serve from the close of the annual meeting at which they are elected until the close of the next annual meeting, and until their successors are elected and qualified. The secretary shall be elected by the Board of Directors, and shall serve for such term as it may specify.

ARTICLE 5.

Administration.

Board of Directors. The affairs of this Association shall be administered by the Board of Directors, consisting of the officers, all ex-presidents, one member designated annually by each section, and additional directors elected by the affiliated health societies of the several states of the United States, of the several provinces of Canada, and of the several states or other political subdivisions of Mexico, Cuba, and other countries represented in the American Public Health Association. The number of such elected delegates to the Board shall not exceed 150. It shall be the duty of the Board of Directors at each annual meeting, to fix the basis of representation in such a way as to apportion the right to appoint delegates among the affiliated societies, in accordance with the membership in the American Public Health Association located in each society's district. The delegates shall be elected for two years.

ARTICLE 6.

Meetings.

Meetings of the Association shall be held at such times and places as may be directed under the by-laws. Twenty-five members shall constitute a quorum.

ARTICLE 7.

Saving Clause.

This constitution shall take effect immediately upon its adoption by the Asso-

ciation, but it shall not be construed to invalidate any act of the Association, or of any officer or committee thereof, done in accordance with the preceding constitution prior to or pending organization under this constitution.

ARTICLE 8.

Amendments.

This constitution may be amended by a two-thirds vote of the members of the Board of Directors present and voting at an annual meeting of the Association; provided, that the call for such meeting shall have specified the particular amendment which is to be acted upon, and provided also that no amendment shall be acted upon before the annual meeting following that at which it was proposed.

By-Laws.

ARTICLE 1.

Membership and Dues.

Section 1. Membership is of four kinds: (1) Fellows; (2) Associate members; (3) Honorary members; (4) Corporate members; (5) Sustaining members.

A *fellow* is a person who has been elected to fellowship in accordance with the by-laws, who is an active worker in conservation of health, and who conforms to the constitution and by-laws of the association. An *associate member* is a person interested in conservation of health, who has been elected to associate membership in accordance with the by-laws, and who conforms to the constitution and by-laws of the Association. An *honorary member* is a person elected to membership of that class, by the Association for distinguished service to the objects for which the Association stands. A *corporate member* is a firm or corporation not engaged primarily in the conservation and promotion of public health, which has been elected to membership of that class by the Association in accordance with the by-laws. A *sustaining member* is a person who has been elected to membership in that class according to the by-laws.

Section 2. The dues of fellows are $5.00 a year; of associate members $1.00 a year; corporate members and sustaining members not less than $50.00 a year. Honorary members pay no dues. Dues are payable in advance.

Such part of each fellow's dues as may be determined by the Executive Committee shall be considered as payment of his subscription to the American Journal of Public Health.

The dues of the associate members shall be collected through the local societies. Such associate members are not entitled to the American Journal of Public Health. The publications of the Association other than the American Journal of Public Health, to which the associate members are entitled, shall be determined from time to time by the Executive Committee.

ARTICLE 2.

Board of Directors.

The planning of the work of the Association, the management of the Association and its properties, the election of officers and committees, the apportionment of delegates among the several affiliated societies, the establishment of rules setting forth conditions of membership in societies, the observance of which shall be necessary for affiliation, and all other matters relating to administration of its affairs, shall be vested in the Board of Directors except as herein expressly provided.

The president of the Association shall be the presiding officer of the Board of Directors, and the secretary of the Association its secretary. The president, vice-presidents, secretary, and treasurer shall be ex-officio members of the Board. Ten directors shall constitute a quorum.

ARTICLE 3.

Executive Committee.

There shall be an Executive Committee, consisting of nine members of the Board of Directors. The Board of Directors shall elect six members, and the president, secretary, and treasurer shall be members ex-officio. The six elective members shall serve three years, and two shall be elected at each annual meeting.

The executive work of the Association shall be performed by the Executive Committee; provided, that in the interim between meetings of the Committee, the president, secretary, and treasurer shall perform the executive work generally pertaining to their offices. Four members of the Executive Committee shall constitute a quorum.

ARTICLE 4.

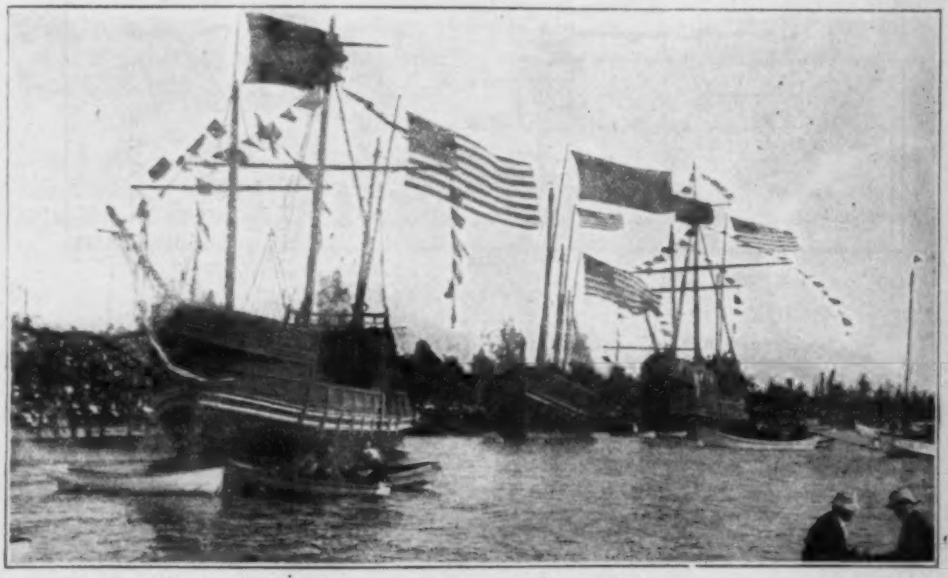
Meetings.

There shall be at least one stated annual meeting of the Association, at a place to be fixed by the Board of Directors. The time of the meeting shall be determined by the Executive Committee. Other meetings of the Association may be called by the Board at such times as it deems proper.

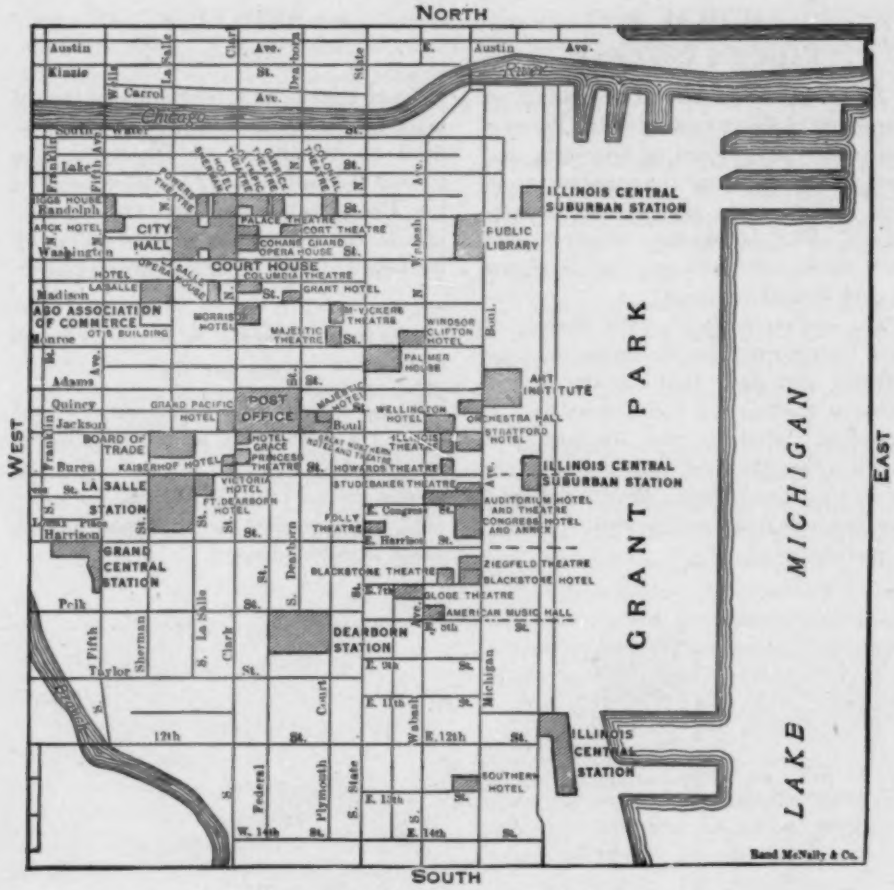
ARTICLE 5.

Amendments.

These by-laws may be amended by the vote of a majority of all the members of the Board of Directors present and voting at any annual meeting, the call for which shall have specified the particular amendment to be acted upon.



The Columbus Caravel in Jackson Park.



MAP OF BUSINESS SECTION OF CHICAGO.

CHICAGO HOTELS.

AUDITORIUM, 430 So. Michigan Ave. A few double rooms available, $.90 and $1.00 per night for one person; $1.20 and $1.50 for two persons; $1.40 and $1.75 for three; $1.60 and $2.00 for four.

BISMARCK (cap. 300): 171 W. Randolph St. Single room with bath, $1.50; single room without bath, $1.

BREVOORT (cap. 500): 120 W. Madison St. Single room with bath, $2.50 and $3; single room without bath, $1.50.

CONGRESS AND ANNEX: Michigan Ave and Congress St. single room with bath $3.00 up; without bath, $2.00 up.

GRAND PACIFIC (cap. 400): Jackson Boul. and Clark St. Single room with bat h, $2 and up; single room without bath, $1.50 and $2.

LA SALLE (cap. 1,800): Madison and La Salle Sts. Single room with priv ate bath, $3, $3.50, $4, and $5; single room with detached bath, $2, $2.50, $3.

MORRISON (cap. 1,000): Clark and Madison Sts. Single room with bath, $2 and up.

PALMER HOUSE (cap. 1,000): State and Monroe Sts. Single room with bath, $2.50, $3, $3.50, $4, and $5; single room without bath, $1.50 and $2.

SHERMAN (cap. 1,500): Clark and Randolph Sts. Single room with bath, $2, $2.50, $3.50, $4, and $5.

Y. M. C. A. HOTEL (cap. 1,000): 822 S. Wabash Ave. Rooms without bath for a single night, 75¢ and 85¢.

A list of private boarding houses will be available at headquarters.

HEADQUARTERS.

Headquarters will be on Floor B of the Morrison Hotel. All guests are requested to register whether members or not. Programs for all and badges for members will be given out upon registration. Announcements will also be posted here, and descriptive booklets regarding the places of interest in Chicago will be available for guests.

Monday morning, October 14, has been especially set aside for registration, although headquarters will be open throughout the sessions.

EXHIBITS.

Commercial exhibits will be found on Floor B of the Hotel Morrison. Prospective exhibitors are directed for space to Dr. A. R. Reynolds, 306 South Wabash Avenue, Chicago. A list of the exhibitors will be carried in the final program.

There will also be a scientific exhibit which will be found in the upper lobbies of the Morrison Hotel.

Our members will find both commercial and scientific exhibits of great interest and are urged to visit them.

PUNCTUALITY.

With one exception, meetings will begin at 9:00 a. m., 2:00 p. m., and 7:45 p. m. The general session on Tuesday afternoon will be called to order at 1:15 p. m., in order to adjourn in time for the boat ride. Members and guests are earnestly requested to arrive five minutes before, rather than after the stated time for opening meetings.

ADVISORY COUNCIL.

The Advisory Council is the nominating body of the Association.

In the Tuesday afternoon general session, the members will be asked to group themselves by states or provinces in order to elect representatives to the Advisory Council. The Advisory Council will meet on Wednesday at 5:00 p. m. in order to choose nominees for the offices of president, third vice-president, treasurer, and ten directors.

BOARD OF DIRECTORS.

The Board of Directors consists of the officers, all ex-presidents, a member designated annually by each section, and thirty additional directors, who serve for three years. Ten of these are elected by the Association each year.

The administrative affairs of the Association are entrusted to this body. In Chicago the Board of Directors will have two important sessions on Monday, October 14, at 10:00 a. m., and 2:00 p. m., respectively. There will be a luncheon for the directors at 12:30 p. m. As business of the most vital importance to the Association will be taken up, it is hoped that all directors attend these meetings without fail.

AMERICAN PUBLIC HEALTH ASSOCIATION

OFFICERS AND DIRECTORS 1917-1918

OFFICERS

President, Charles J. Hastings, M. D., Toronto, Ont.
First Vice-President, George M. Kober, M. D., Washington, D. C.
Second Vice-President, Manuel S. Iglesias, M. D., Vera Cruz, Mex.
Third Vice-President, Guilford H. Sumner, M. D., Des Moines, Iowa.
Treasurer, Lee K. Frankel, Ph. D., New York City.
Secretary, A. W. Hedrich, Boston, Mass.

EXECUTIVE COMMITTEE

Charles J. Hastings, M. D., Toronto, Ontario.
Lee K. Frankel, Ph. D., New York City.
W. A. Evans, M. D., Chicago, Illinois.
Peter H. Bryce, M. D., Ottawa, Ontario.
Guilford H. Sumner, M. D., Des Moines, Iowa.
A. W. Hedrich, Boston, Massachusetts.
J. N. Hurty, M. D., Indianapolis, Ind.

SECTION OFFICERS

Sanitary Engineering

Chairman, Mr. George S. Webster, Philadelphia, Pa.
Vice-Chairman, Mr. E. A. Fisher, Rochester, N. Y.
Secretary, Mr. Samuel A. Greeley, Chicago, Ill.

Food and Drugs

Chairman, Mr. Lucius P. Brown, New York City.
Vice-Chairman, Mr. John P. Street, New Haven, Conn.
Secretary, Dr. James O. Jordan, Boston, Mass.

Vital Statistics

Chairman, Dr. J. W. Trask, Washington, D. C.
V. Chairman, Louis I. Dublin, Ph. D., New York City.
Secretary, Mr. Richard C. Lappin, Washington, D. C.

Sociological

Chairman, Dr. Wm. F. Snow, Washington, D. C.
Vice-Chairman, Dr. Louis I. Harris, New York City.
Secretary, Dr. Ira S. Wile, New York City.

Public Health Administration

Chairman, Dr. Oscar W. Dowling, New Orleans, La.
V. Chairman, Dr. Francis Fronczak, Buffalo, N. Y.
Secretary, Mr. Chester H. Wells, Montclair, N. J.

Laboratory

Chairman, Dr. George W. McCoy, Washington, D. C.
V. Chair., R. B. Fitz-Randolph, Trenton, N. J.
Sec., Dr. Chas. Krumwiede, Jr., New York City.

Industrial Hygiene

Chairman, Dr. George M. Price, New York City.
V. Chair., Dr. J. W. Schereschewsky, Pittsburgh, Pa.
Sec., Dr. Francis D. Patterson, Harrisburg, Pa.

BOARD OF DIRECTORS 1917-1918

DIRECTORS ELECTED BY THE ASSOCIATION

Directors whose term expires 1920

John B. Anderson, M. D., Spokane, Wash.
M. S. Fraser, M. D., Winnipeg, Man.
J. N. Hurty, M. D., Indianapolis, Ind.
C. S. Caverly, M. D., Rutland, Vt.
M. M. Seymour, M. D., Regina, Sask.
L. A. Galaretta, M. D., Havana, Cuba.
P. M. Hall, M. D., Minneapolis, Minn.
J. H. Landis, M. D.,* Cincinnati, Ohio.
B. L. Arms, M. D., Jacksonville, Fla.
C. J. McGurren, M. D., Devil's Lake, N. D.

Directors whose term expires 1919

Hoyt E. Dearholt, M. D., Milwaukee, Wis.
Raymond B. Fitz-Randolph, M. D., Trenton, N. J.
W. A. Sawyer, M. D., Sacramento, Cal.
Henry F. Vaughan, D. P. H., Detroit, Mich.
John S. Fulton, M. D., Baltimore, Md.
John D. Robertson, M. D., Chicago, Ill.
Wilmer R. Batt, M. D., Harrisburg, Pa.
Henry Boswell, M. D., Booneville, Miss.
James A. Hayne, M. D., Columbia, S. C.
A. J. Douglas, M. D., Winnipeg, Manitoba.

Directors whose term expires 1918

J. T. Black, M. D., New London, Conn.
Livingston Farrand, M. D., Boulder, Colo.
Guilford H. Sumner, M. D., Des Moines, Ia.
C. Harris, M. D., Memphis, Tenn.
Charles V. Chapin, M. D., Providence, R. I.
Oscar W. Dowling, M. D., New Orleans, La.
William H. Park, M. D., New York, N. Y.
William M. Cobleigh, Bozeman, Mont.
M. P. Ravenel, M. D., Columbia, Mo.
P. S. Schenk, M. D., Norfolk, Va.

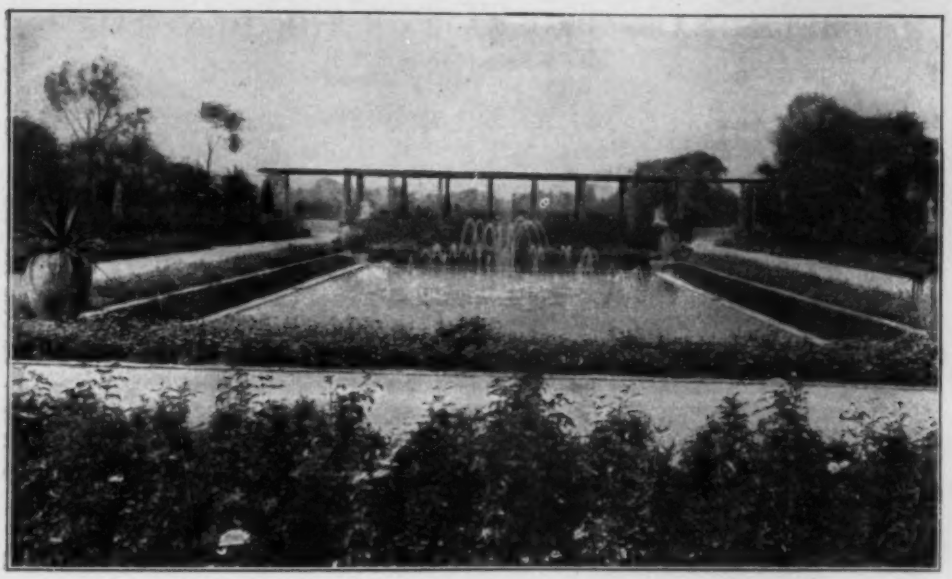
Past Presidents (Directors Ex-Officio)

Stephen Smith, M. D., Skanaeteles, N. Y.
Frederick Montizambert, M. D., Ottawa, Ontario.
Samuel Durgin, M. D., Millbrook, Mass.
Emmanuel P. Lachapelle, M. D.,* Montreal, Quebec.
Eduardo Liceaga, M. D., Mexico, City.
Henry Mitchell, M. D., Asbury Park, N. J.
Peter H. Bryce, M. D., Ottawa, Ontario.
Frank F. Wesbrook, M. D., Vancouver, B. C.
Richard H. Lewis, M. D., Raleigh, N. C.
Gardner T. Swarts, M. D., Providence, R. I.
Robert M. Simpson, M. D., Winnipeg, Manitoba.
John N. Hurty, M. D., Indianapolis, Ind.
Rudolph Hering, D. Sc., New York, N. Y.
William C. Woodward, M. D., Washington, D. C.
William T. Sedgwick, D. Sc., Cambridge, Mass.
John F. Anderson, M. D., New Brunswick, N. J.
W. A. Evans, M. D., Chicago, Ill.

Representatives of Sections to Board of Directors

Industrial Hygiene, Dr. Alice Hamilton, Mackinac Is., Mich.
Sanitary Engineering, George S. Webster, Philadelphia, Pa.
Food and Drugs, J. P. Street, New Haven, Conn.
Sociological, Dr. Donald B. Armstrong, Framingham, Mass.
Pub. Health Adm., Dr. F. X. Mahoney, Boston, Mass.
Laboratory, Prof. F. B. Gorham, Providence, R. I.
Vital Statistics, Dr. W. H. Guilfoy, New York City.

*Deceased



SCENE IN HUMBOLDT PARK.

ENTERTAINMENT PROGRAM.

On Tuesday afternoon, October 15, members and guests at the convention will be taken by boat on the Lake to a crib, and for a short distance down the Drainage Canal. Dinner will be served at the crib. Some of the points of interest will be:

The Chicago Sky Line	Entrance to the Harbor
View of the City Cribs	Municipal Pier
Water Intake and Pumping Station	River and Drainage Channel

The general session on Tuesday afternoon, October 15, will be adjourned promptly at 2:50 p. m. The party will then proceed north to the river dock at State Street from which the boat will leave promptly at 3:00 p. m. Guests are advised to bring overcoats.

Guests will be returned to the dock at State Street not later than 7:30 p. m.

Guests are also invited to inspect the State Penitentiary at Joliet, Ill., where a model of a new cell house is to be seen.

Other short trips will be announced at the meetings.

ENTERTAINMENT OF LADIES.

Women guests are welcome. There will be a committee for the entertainment of ladies. The entertainment program will be announced in the final program.

OTHER MEETINGS.

The International Association of Milk Inspectors will meet in Chicago, October 14, 15, and 16. Headquarters will be at Hotel Sherman. The secretary of the Association is Mr. Ivan C. Weld, 1120 Connecticut Avenue, Washington, D. C.

The American Association of Sanitary Engineers will meet in Chicago, October 14–15.

The secretary of the Association is Mr. Thomas J. Claffy, Department of Health, Chicago.

PRELIMINARY PROGRAM OF THE GENERAL SESSIONS.

President, CHARLES J. HASTINGS, M. D., *Toronto, Ont.*
Vice-President, GEORGE M. KOBER, M. D., *Washington, D. C.*
Secretary, A. W. HEDRICH, *Boston, Massachusetts.*

FIRST SESSION.

Monday, October 14, 7:45 p. m.

Presidential Address. CHARLES J. HASTINGS, M. D., *Toronto, Ontario.*
Address. W. A. PUSEY, M. D., *President, Chicago Medical Society.*
Address. ARTHUR D. BEVAN, M. D., *President, American Medical Association.*
Address. E. W. FIEGENBAUM, M. D., *President, Illinois Medical Society.*
Reception.

SECOND SESSION.

Tuesday, October 15, 1:15 p. m.

Address. W. C. GORGAS, *Surgeon General, U. S. A.*
Report on Constitution. W. A. EVANS, M. D., *Chicago, Illinois.*
Discussion and voting on constitution.
Election of Advisory Council.

At 2:50 p. m., the meeting will adjourn, and guests will be taken by boat on the Lake and up the Drainage Canal. See under "Entertainment."

THIRD SESSION.

Tuesday, October 15, 8:00 p. m.

The Health of the Civil Population in War Time. VICTOR C. VAUGHAN, *Colonel, Medical Corps.*
Some Public Health Problems and Opportunities Created by the War. WILLIAM H WELCH, *Major, Medical Corps.*
Maintenance of Balance between Civil and Military Health Protection. W. A. EVANS, M. D., *Chicago, Illinois.*
Address. Representative of the British Government.
Discussions.

FOURTH SESSION.

Wednesday, October 16, 7:45 p. m.

Team-play for Public Health. GEORGE E. VINCENT, *President, Rockefeller Foundation, New York City.*
The Future of the American Public Health Association. LEE K. FRANKEL, PH. D. *Treasurer, American Public Health Association, New York City.*
The Accomplishments of Public Health. Statistical and Historical Evidence.
Discussions.

FIFTH SESSION.

Thursday, October 17, 1:00 p. m.

War-time Importance of Narcotic Drug Addiction. ERNEST S. BISHOP, *Professor of Clinical Medicine, New York University and Bellevue Hospital Medical College, New York City.*

A National Program for Physical Education. W. S. SMALL, M. D., *Bureau of Education, Washington, D. C.*

The Need of a Section on School Hygiene of the American Public Health Association. J. A. NYDEGGER, *Surgeon, U. S. P. H. S., Baltimore, Md.*

Committee reports.

Election of Officers and Directors.

PROGRAM OF THE SECTION ON PUBLIC HEALTH ADMINISTRATION.

Chairman, DR. OSCAR W. DOWLING, *New Orleans, La.*
Vice-Chairman, DR. FRANCIS E. FRONCZAK, *Buffalo, N. Y.*
Secretary, CHESTER H. WELLS, *Wilmington, Del.*

FIRST SESSION.

Monday, October 14, 2:00 p. m.

Minutes of last annual meeting.

Introduction of new business to be considered by the section before final adjournment.

Appointment of nominating committee.

Report of Committee on Standardizing the Work of Public Health Officials. LAWRENCE VEILLER, M. D., *New York City.*

Report of Committee on Rural Health Administration. G. F. RUEDIGER, M. D., *Reno, Nev.*

Rural Sanitary Privies. WARREN H. BOOKER, *State Board of Health, Raleigh, N. C.*

Scoring of Health Activities in Cities. PAUL B. BROOKS, M. D., *State Board of Health, Albany, N. Y.*

DISCUSSION: Opened by EUGENE R. KELLY, M. D., *State Board of Health, Boston, Mass.*

Taking the Board of Health to the People. B. L. ARMS, M. D., *City Bacteriologist, Jacksonville, Fla.*

Public Health Education—A Plea for a Public Health Magazine, to be published by the Health Authorities. B. LIBER, M. D., *New York City.*

SECOND SESSION.

Tuesday, October 15, 9:00 a. m.

Chairman's Address. OSCAR DOWLING, M. D., *New Orleans, La.*

Report of Committee on Venereal Disease. LT.-COL. W. F. SNOW, *Washington, D. C., Chairman.*

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

Report of Committee on National Program of Prenatal and Maternal Care. MAJOR HAVEN EMERSON, *Chairman.*

Report of Committee on Standard Regulations for the Control of Communicable Diseases. MAJOR HAVEN EMERSON, *Chairman.*

The Relation of War to the Conservation of Child Life. S. JOSEPHINE BAKER, M. D., *Department of Health, New York City.*

War Program of the Federal Children's Bureau. DR. ANNA E. RUDE, *Director, Hygiene Division, Federal Children's Bureau.*

Venereal Diseases. JOHN DILL ROBERTSON, M. D., *Commissioner of Health, Chicago, Ill.*

Vaccination as a War Measure. MAURICE OSTHEIMER, M. D., *Commissioner of Health, Philadelphia, Pa.*

DISCUSSION: Opened by ALBERT J. BELL, M. D., *Cincinnati, O.*, and S. S. WOODY, M. D., *Philadelphia, Pa.*

Report of Nominating Committees, and Election of Officers.

THIRD SESSION.

Wednesday, October 16, 2:00 p. m.

Joint Session with Laboratory Section.

FOURTH SESSION.

Thursday, October 17, 9:00 a. m.

Fashions as Affecting Public Health. JEANNETTE THROCKMORTON, M. D. *Chariton, Ia.*

Public Health Nursing in the Extra Cantonment Zone. MISS MARY E. LENT, *United States Public Health Service.*

Prevalence of Goiter in West Virginia. MAYO TOLMAN, *Charleston, W. Va.*

New Evidence on the Cause of Tuberculosis (Stereopticon illustrations). BURTON R. ROGERS, D. V. S., *New York City.*

Report of Committee on Closing Schools during Epidemics. W. S. SMALL, M. D., *Bureau of Education, Washington, D. C., Chairman.*

Interesting Experiences of Public Health Officials. Volunteer speakers from the floor.

PRELIMINARY PROGRAM OF THE LABORATORY SECTION.

Chairman, G. W. MCCOY, M. D., *Washington, D. C.*
Vice-Chairman, R. B. FITZ-RANDOLPH, M. D., *Trenton, N. J.*
Secretary, CHARLES KRUMWIEDE, JR., M. D., *New York City.*

FIRST SESSION.

Tuesday, October 15, 9:00 a. m.

Address of Chairman.

Reports of Committees.

Suggested Modifications of the Standard Method for the Study of the Dust Content of Air. HENRY FIELD SMYTH, *Acting Director, Laboratory of Hygiene, University of Pennsylvania, Philadelphia.*

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

Disinfection of Drinking Water by Hypochlorite, Permanganate, Halozone and Citric Acid. B. FANTUS, *Chicago, Ill.*

SECOND SESSION.

Wednesday, October 16, 2:00 p. m.

Joint Session with Public Health Administration Section.

On the Relative Frequency of Hemolytic Streptococci in Normal Throats. B. J. CLAWSON, *Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.*

Observations on the Avian Paratyphoid Bacilli. F. W. MULSOW, *Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.*

On Toxic Products which May be Present in Heated Milk and their Relation to Pasteurization. WILLIAM W. FORD, *School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.*

On the Presence of Methyl Red Negative Organisms in the Intestinal Tract and Its Bearing upon the Problem of Water Examination. WILLIAM W. FORD, *Baltimore, Md.*

Factors which Influence the Thermal Death Point of B. Botulinus in Canning. R. E. BUCHANAN and PAUL ORR.

Relative Value of Culture and Inoculation Tests in the Detection of Tetanus Spores. I. A. BENGSTON and G. W. MCCOY, *Hygienic Laboratory, Washington, D. C.*

Detection of Anthrax Infection in Shaving Brushes. J. P. LEAKE and ARTHUR LEDERER, *Hygienic Laboratory, Washington, D. C.*

THIRD SESSION.

Thursday, October 17, 9:00 a. m.

A Rapid Method for the Identification of Bacteria Fermenting Carbohydrates. J. BRONFENBRENNER, PH. D., and M. J. SCHLESINGER, *Harvard University Medical School, Boston, Mass.*

The Preparation of Milk-Whey as Culture Medium. J. BRONFENBRENNER, PH. D., C. R. DAVIS and K. MORISHIMA.

Carbohydrate Fermentation by Bacteria as Influenced by the Composition of the Medium. J. BRONFENBRENNER, PH. D., and M. J. SCHLESINGER.

Spontaneous Agglutination as a Factor Interfering with the Identification of Bacteria. O. ISHII and M. J. SCHLESINGER.

Notes on Some Indicators for Titrating Bacteriologic Media. J. F. NORTON, *Department of Hygiene and Bacteriology, University of Chicago, Chicago, Ill.*

Further Experiences with the Methylene Blue-Eosin Medium for the Isolation of Typhoid and Paratyphoid Bacilli. JOHN B. HAMILTON, *State University of Iowa, Iowa City, Iowa.* By Invitation.

Observations on the Rate of Growth of B. Coli. R. C. SALTER.

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

PRELIMINARY PROGRAM OF THE SOCIOLOGICAL SECTION.

Chairman, Wm. F. Snow, *Lt.-Col., M. C., Washington, D. C.*
Vice-Chairman, Louis I. Harris, M. D., *New York City.*
Secretary, Ira S. Wile, M. D., *New York City.*

First Session.

Monday, October 14, 2:00 p. m.

What Is the Relation of Wages to Public Health?

The Relation of Wages to Public Health. B. S. Warren, *Assistant Surgeon-General, Public Health Service, Washington, D. C.*

The Relation of Wages to Public Health as Viewed by Labor. Arthur E. Holder, *Member Federal Board for Vocational Education, Washington, D. C.*

The Relation of Wages to Infant Mortality. Miss Julia Lathrop, *Director, Federal Children's Bureau, Washington, D. C.*

Discussant, H. A. Millis, *Secretary, Illinois Health Insurance Commission, Chicago, Ill.*

Second Session.

Tuesday, October 15, 9:00 a. m.

How May Hospital and Dispensary Organizations be Re-constructed for Increased Social Efficiency?

Group Medicine. Michael M. Davis, *Director, Boston City Dispensary, Boston, Mass.*

Discussant, W. A. Sawyer, *Major, M. C., Washington, D. C.*

Corporation Hospitals and Dispensaries. Harry E. Mock, *Lieutenant-Colonel M. C., Washington, D. C.*

Discussant, Loyal A. Shoudy, *Chief Surgeon, Bethlehem Steel Company, Pittsburgh, Pa.*

Hospital and Dispensary Organizations. R. A. Bolt, *Chief of Bureau Child Hygiene, Department of Public Welfare, Division of Health, Cleveland, O.*

Third Session.

Wednesday, October 16, 9:00 a. m.

What Adjustment in Health Administration Must be Made as a Result of War Conditions?

Venereal Diseases. William F. Snow, *Lt.-Col. M. C., Washington, D. C.*

Discussant, S. J. Crumbine, *Secretary, Kansas State Board of Health, Topeka, Kans.*

Tuberculosis. Donald B. Armstrong, M. D., *Executive Officer, Community Health and Tuberculosis Demonstration, Framingham, Mass.*

Discussant, Hoyt E. Dearholt, M. D., *Executive Secretary, The Wisconsin Anti-Tuberculosis Association, Milwaukee, Wis.*

Industrial Accidents and Diseases. Emery R. Hayhurst, M. D., *Consultant, Division of Industrial Hygiene, Ohio State Department of Health, Columbus, O.*

Fourth Session.

Thursday, October 17, 9:00 a. m.

Round Table Discussion—What is the Effect of the High Cost of Living on Public Health?

Leaders:

JOHN DILL ROBERTSON, M. D., *Commissioner of Health, Chicago, Ill.*
LOUIS HARRIS, M. D., *Director, Bureau of Preventable Diseases, New York, N. Y.*
E. R. KELLEY, M. D., *State Commissioner of Health, Boston, Mass.*

PRELIMINARY PROGRAM OF THE SECTION ON INDUSTRIAL HYGIENE.

Chairman, G. M. PRICE, M. D., *New York City.*
Vice-Chairman, J. W. SCHERESCHEWSKY, M. D., *Washington, D. C.*
Secretary, FRANCIS D. PATTERSON, M. D., *Harrisburg, Pa.*

FIRST SESSION.

Monday, October 14, 2:00 p. m.

The Problems of Industrial Hygiene.

The Problems of Industrial Hygiene. GEORGE M. PRICE, M. D., *New York, N. Y.*
The Problem of Organic Dust in Modern Industries. FREDERICK L. HOFFMAN, LL. D., *Newark, N. J.*
The Problem of Industrial Poisons. J. W. SCHERESCHEWSKY, M. D., *Washington, D. C.*
The Problem of Industrial Fatigue. FREDERIC LEE, M. D., *New York, N. Y.*
The Problem of Compensation for Industrial Disease. FREDERIC L. VAN SICKLE, M. D., *Olyphant, Pa.*
The Problem of Women in Industry. ELIZABETH B. BRICKER, M. D., *Director, Division of Woman and Child Labor, Department of Labor and Industry, Harrisburg, Pa.*

SECOND SESSION.

Tuesday, October 15, 9:00 a. m.

The Problems of the War Industries.

The Explosives Industry. W. G. HUDSON, M. D., *New York City and Wilmington, Del.*
The Textile Industry. A. J. LANZA, M. D., *Pittsburgh, Pa.*
The Dye Industry. ALICE HAMILTON, M. D., *Chicago, Ill.*
The Steel Industry. LOYAL A. SHOUDY, M. D., *Bethlehem, Pa.*
The Shipbuilding Industry. LIEUTENANT-COL. PHILIP S. DOANE, *Philadelphia, Pa.*

THIRD SESSION.

Wednesday, October 16, 9:00 a. m.

Industrial Hygiene in Relation to the Efficiency of the Worker.

Housing. ROYAL MEEKER, M. D., *Washington, D. C.*
Lighting. PROFESSOR C. E. CLEWELL, *Philadelphia, Pa.*
The Relation of the Federal Compensation Act to the Health and Welfare of Civil Employees of the U. S. Government. J. W. TRASK, M. D., *Washington, D. C.*
The Clinic for Vocational Diseases. LOUIS I. HARRIS, M. D., *New York.*
Industrial Medicine and Surgery in Relation to War and Production. OTTO P. GEIER, M. D., *Cincinnati, O.*
Organization of the Works for Industrial Hygiene. C. K. DRINKER, M. D., *Harvard Medical School, Boston, Mass.*

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

PRELIMINARY PROGRAM OF THE SECTION ON VITAL STATISTICS.

Chairman, JOHN W. TRASK, M. D., *Washington, D. C.*
Vice-Chairman, LOUIS I. DUBLIN, PH. D., *New York, N. Y.*
Secretary, RICHARD C. LAPPIN, *Washington, D. C.*

FIRST SESSION.

Monday, October 14, 2:00 p. m.

Registration of Births and Deaths in Illinois. C. ST. CLAIR DRAKE, *State Health Commissioner, Springfield, Ill.*

An Inquiry in the Reliability of Causes of Death. LOUIS I. DUBLIN, PH. D., and GEORGE H. VAN BUREN.

Election of Nominating Committee.

Report of the Committee on Institutional and Hospital Statistics.

Report of the Committee on Morbidity Reports and Statistics. A. J. CHESLEY, M. D., *Chairman.*

Report of the Committee on Membership. CHARLES F. BOLDUAN, M. D., *Chairman.*

Report of the Committee on the Accuracy of Certified Causes of Death and its Relation to Mortality Statistics and the International List. HAVEN EMERSON, M. D., *Chairman.*

Report of the Committee on Legislation. CHARLES V. CHAPIN, M. D., *Chairman.*

SECOND SESSION.

Tuesday, October 15, 9:00 a. m.

Report of Nominating Committee and Election of Officers and Section Council.

Report of Committee on Morbidity Records and Mortality Statistics in Industry. LOUIS I. DUBLIN, PH. D., *Chairman.*

Difficulties Encountered in Allocating Nonresident Deaths in the State of New York. OTTO R. EICHEL, M. D.

Relation of Vital Statistics to Public Health Administration. W. F. PETRIE.

Collection of Birth Records in Thinly Settled Communities. L. W. FEEZER.

Report of the Committee on Amendments to the Standard Certificate of Birth. WILLIAM H. DAVIS, M. D., *Chairman.*

THIRD SESSION.

Wednesday, October 16, 2:00 p. m.

The Pioneer Registration State of the West. W. F. PETRIE.

Report of the Committee on Registration Affairs. WILLIAM H. DAVIS, M. D., *Chairman.*

Report of the Committee on the 1920 Census and its Relation to Vital Statistics. WM. H. GUILFOY, M. D., *Chairman.*

Family Statistics from Registration Sources. EDWIN W. KOPF.

Coöperation of State and Federal Governments in the Registration of Births and Deaths. JNO. EMERSON MONGER, M. D.

Birth Registration in Connecticut. JAMES P. BALFE.

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

FOURTH SESSION.

Thursday, October 17, 9:00 a. m.

Report of Section Council and Nomination of Standing Committees for Ensuing Year.
The Toll of the Degenerative Diseases, with a Plan for its Reduction. E. B. FINK.
One Year of Infant Mortality in the United States during War. FREDERICK S. CRUM, PH. D.
Report of the Committee on Forms and Methods of Statistical Practice. WALTER F. WILLCOX, PH. D., *Chairman.*
Report of the Committee on Nonresident Deaths. W. R. BATT, M. D., *Chairman.*
Report of the Committee on Resolutions. WM. H. GUILFOY, M. D., *Chairman.*
Unfinished Business.

PRELIMINARY PROGRAM OF THE SECTION ON FOOD AND DRUGS.

Chairman, LUCIUS P. BROWN, *New York City.*
Vice-Chairman, JOHN P. STREET, *New Haven, Conn.*
Secretary, JAMES O. JORDAN, *Boston, Mass.*

FIRST SESSION.

Monday, October 14, 2:00 p. m.

General Considerations on War-time Foods.

The Food-supply of the United States after a Year of War. Address of chairman. LUCIUS P. BROWN, *Director, Bureau of Food and Drugs, Dept. of Health, New York City.*

Reports of committees on the following:

Conservation and Development of Food Supplies. PETER H. BRYCE, M. D., *Chief Medical Officer, Canada Immigration Service, Ottawa, Ont.*
Municipal Food Administration. OLE SALTHE, *Assistant Director, Bureau of Food and Drugs, Dept. of Health, New York City.*
Nutritional Problems. HENRY C. SHERMAN, *Professor of Food Chemistry, Columbia University, New York City.*

Papers, as follows:

What is a "Balanced Ration"?
Why the Maintenance of the Dairy Industry is Paramount for a Nation at War. CHARLES E. NORTH, M. D., *Director, The North Public Health Bureau, New York City.*
The Real Relation of Foods and Food Inspection to the Public Health.

SECOND SESSION.

Tuesday, October 15, 9:00 a. m.

The Civilian's Foods in War-time.

Reports of committees on the following:

Preparation, Packing, and Transportation of Foods. LESTER A. ROUND, *Bacteriologist, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.*
Relation of Food to Disease. MILTON J. ROSENAU, M. D., *Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass.*

Retail Distribution and Marketing of Foods. MISS MARION TALBOT, *Professor of Household Administration, Univ. of Chicago, Chicago, Ill.*

Papers, as follows:

A Year's Changes in Food Habits.

Meats—The Present Aspect of Supply, Conservation and Development. W. H. LIPMAN, M. D., *Medical Director, Swift & Co., Chicago, Ill.*

The Inter-relation of the Controls of Quantity and Purity of Foods—What are the Irreducible Minima of the Latter Necessary in War-time? H. E. BARNARD, PH. D., *State Food and Drug Commissioner; Federal Food Administrator for Indiana, Indianapolis, Ind.*

"*Ersatze*" and Surrogates; some Lessons from Europe.

THIRD SESSION.

Wednesday, October 16, 9:00 a. m.

Reports of committees on the following:

Drugs and Nostrums. ARTHUR J. CRAMP, M. D., *Director of the Propaganda for Reform Department of The Journal of the American Medical Assn., Chicago, Ill.*

Habit Forming Drugs. EDWARD GUION, M. D., *Physician and Sanitarian, U. S. Army Base Hospital, Camp Wheeler, Ga.*

Control of Milk and Dairy Products. PROF. H. A. HARDING, *Dairy Bacteriology, College of Agriculture, University of Illinois, Urbana, Ill.*

Papers, as follows:

Price Control of Foods—Why is it Justified?

The Supply of Pharmaceuticals and Medicines in War-times; Its Importance and Dangers. PROF. CHARLES H. LAWALL, *Dean, Philadelphia College of Pharmacy, and Analytical Chemist, Philadelphia, Pa.*

Legitimate Use of Narcotics in War-time. DR. ERNEST S. BISHOP, *New York City.*

Two War Jokers (in Narcotics). MISS JEANNETTE MARKS, *The President's House, South Hadley, Mass.*

The Relation of Modern Advertising to the Nostrum Evil. ARTHUR J. CRAMP, M. D., *Director, Propaganda for Reform Dept., Journal of the American Medical Assn., Chicago, Ill.*

FOURTH SESSION.

Thursday, October 17, 9:00 a. m.

The Soldier's Food.

Reports of committees on the following:

Problems of Canning. WILLARD D. BIGELOW, *Chief Chemist, National Canners' Assn., Washington, D. C.*

Cold Storage. HERMANN C. LYTHGOE, *Director, Division of Food and Drugs, State Department of Health, Boston, Mass.*

Meat Inspection. M. DORSET, *Chief, Biochemic Division, U. S. Department of Agriculture, Washington, D. C.*

Papers, as follows:

The Fighter's Food Needs. JOHN R. MURLIN, *Lieutenant-Colonel Sanitary Corps, U. S. A., Chief, Division of Food and Nutrition, Office of the Surgeon-General, Washington D. C.*

Hospital Food Needs. MAJOR R. G. HOSKINS, *Sanitary Corps, Div. of Food and Nutrition, Office of The Surgeon General, Washington, D. C.*

Conservation in Camp Feeding.

The Organization of an Army's Food Supply. Speaker to be assigned by the Quartermaster General, U. S. Army.

PRELIMINARY PROGRAM OF THE SANITARY ENGINEERING SECTION.

Chairman, GEORGE S. WEBSTER, *Philadelphia.*
Vice-Chairman, E. A. FISHER, *Rochester, N. Y.*
Secretary, SAMUEL A. GREELEY, *Chicago, Ill.*

Wednesday, October 16, 9:00 a. m. and Thursday, October 17, 9:00 a. m.

Committee on Air Supplies. PROF. F. H. BASS, *Minneapolis, Minn., Chairman.*

Committee on Water Supplies. F. F. LONGLEY, *N. Y., Chairman.* EDWARD E. WALL, *St. Louis, Mo., Acting Chairman.*

Committee on Sewerage and Sewage Disposal. KENNETH ALLEN, *New York City, Chairman.*

Committee on Sanitary Control of Waterways. H. P. EDDY, *Boston, Mass., Chairman.*

Committee on Refuse Collection and Disposal. SAMUEL A. GREELEY, *Chicago, Chairman.*

Committee on Street Cleaning. RICHARD T. FOX, *Acting Chairman.*

Committee on Constitution. SAMUEL A. GREELEY, *Chicago, Chairman.*

Committee on Works Operation and Analytical Methods. CHAS. B. HOOVER, *Columbus, Ohio, Chairman.*

Committee on Plumbing and Drainage of Buildings. No Chairman.

Committee on Milk Pasteurization. H. A. WHITTAKER, *State Sanitary Engineer, Minneapolis, Minn., Chairman.*

The Work of the Department of Health and Sanitation of the U. S. Shipping Board. P. S. DOANE, *Lieutenant-Colonel, Philadelphia, Pa.*

The Sewage Treatment Problem in Chicago. C. D. HILL, *Engineer, Board of Local Improvements, Chicago, Ill.*

Dissolved Oxygen as an Index of the Pollution of New York Harbor. KENNETH ALLEN, *New York City.*

Recognition Given Sanitary Engineering Work in the Government War Activities. GEORGE W. FULLER, *New York City.*

The Chlorination of the Chicago Water Supply. JOHN ERICKSON, *Chicago, Ill.*

Chemical Control of Water Chlorination. W. J. ALLEN.

Garbage Improvement at Louisville. SAMUEL A. GREELEY, *Chicago, Ill.*

Sanitation and Conservation in the Municipal Utilities of Rochester, N. Y. EDWIN A. FISHER and JOHN F. SKINNER, *Rochester, N. Y.*

————. PROF. E. B. PHELPS, *Hygiene Laboratory, Washington, D. C.*

ALL PAPERS ARE LIMITED to 15 Minutes; DISCUSSIONS to 5 Minutes.

PUBLIC HEALTH NOTES

Abstracted by DAVID GREENBERG and M. P. HOROWITZ.

California.—The State Board of Health has initiated a campaign to enlist the voluntary coöperation of the druggists throughout the state, in eliminating the counter-prescribing evil; much after the same method that has proved so successful in Michigan, where the pharmacists refuse to sell drugs to combat venereal disease except on a physician's prescription. (*D. G.*)

✻

Illinois.—Dr. Heman Spalding, of the Chicago Department of Health, is in charge of Camp Steever's sanitary and surgical needs. Camp Steever is a military training camp for high school boys. The Government furnishes a U. S. Army officer as commander.

✻

Kansas.—Kansas was officially admitted into the birth registration area of the United States, on May 13, 1918, being the fifteenth state thus admitted.

The State is coöperating with the Food Administration, in endeavoring to minimize the unnecessary loss of all food stuffs. Probably the greatest uncalled-for loss of any food is that of the egg. If each purchaser except the consumer will candle, and pay only for the good eggs, the producer will be induced to take better care of his eggs so as to curtail such loss. On this theory the following resolution was passed by the State Board of Health:

"*Resolved*, That all buyers of eggs, except the consumer, shall candle every lot of eggs bought except those eggs that have been previously candled and maintained at a temperature of 40° F. or below; provided, that eggs that are produced between the first day of November and the first day of March are not required to be candled. An egg-candling certificate is required to be placed on the top flat of each case of eggs candled, and resold by the case. It shall show the date candled; by whom; the firm or corporation name, and license number. The form adopted by the United States Food Administration is adopted by this board." (*D. G.*)

Louisiana.—At a recent meeting of the General Assembly, some important public health measures were enacted. Venereal diseases are now to be controlled. Each parish and municipality must maintain a board of health. Better control over the sale of narcotics is now made possible. The Model Law has received official enactment.

✻

Dr. Dowling has completed an itinerary of five of the large cities of the State in which he presented the war film "Fit to Fight." This is the opening gun of the campaign against venereal disease, and the attendance at these meetings has been most gratifying.

✻

That evidence might be had from disinterested authorities concerning the therapeutic value of four widely advertised preparations, the formula and advertising matter on the labels of each were copied. A questionnaire with request for reply, and a brief explanation of the purpose of the inquiry was sent to physicians in charge of the Therapeutical Department in universities having "A" rank throughout the United States and to other physicians of like standing.

These preparations are recommended, two for internal and two for external use. The questions were formulated from the advertising matter.

Condemnation is almost universal and unqualified, and is a clear indication of the judgment of the best medical men in the United States. (*D. G.*)

✻

Health Survey of New Orleans, La.—Acting with the City Board of Health and with the approval and coöperation of the Hon. Martin Behrman, Mayor of New Orleans, the Metropolitan Life Insurance Company is making a comprehensive health survey of that city. Walter L. Dodd, who has had large experience in such work, is in immediate charge of it. The entire force of the City Board of Health has been placed at Mr. Dodd's disposal, and if their coöperation is found desirable, the staff of the Metropolitan in that city will be used. It is

believed that this inspection will be the most comprehensive sanitary inquiry ever undertaken in a city of the size of New Orleans.

Broadly speaking, the inquiry is first as to the death-rate—to find the various causes of disease by districts, to trace the effect of each disease, to ascertain what has been done to combat it.

A canvass of many portions of the city has been undertaken to ascertain the necessity for sanitary reforms, and remedies will be suggested wherever it is discovered that disease has been spread which might easily have been prevented by cleanliness and a proper observance of natural laws.

The birth-rate is being thoroughly investigated, and if it is below normal, a cause will be sought. The systems of garbage disposal and sewerage are receiving minute attention.

Especial attention is to be given to infectious or contagious diseases, and methods will be suggested to either eliminate or arrest them when the cause or source has been ascertained.

School arrangements from a sanitary standpoint, and in this connection, diseases among children, the proper inspection of all public places, the source of food supplies and the methods of handling such supplies will be covered by the investigation.

The City Board of Health itself is coöperating in carefully scrutinizing its own methods, and suggestions that may prove helpful will be welcome.

The entire work is undertaken not in any spirit of criticism, but from a constructive point of view. It is taken up, not only by wards and precincts, but by city blocks, and in many sections each house will receive a thorough examination. It is believed by the Mayor and by the city health authorities that valuable data will be obtained which will be of assistance in solving many problems affecting public health.

One result which will be incidental, it is expected, will show the bearing which sanitary conditions have on the difference in the death-rate between the white and colored portions of the population.

The advantages of the health survey, it is expected, will be not only in improved health conditions, and the lower death-rate, but will have a commercial value for the city. A clean bill of health and modern sanitary conditions, it has been found, figure in many propositions involving large numbers of visitors to a city, such as great conventions and the location of large plants which, during the war, are either controlled or supervised by the Government. The expense of the survey to the community has been carefully calculated, and in comparison with the results sought to be achieved, it is considered trifling.

The main thing, of course, is a reduction in the death-rate for the future, which may result from a scientific study of all the conditions under which the population now lives.

*

Maine.—Mr. A. P. Pratt, C. P. H., formerly district health officer of the State Department of Health with residence in Portland, Maine, has resigned his position to enter the Sanitary Corps of the United States Army.

Mr. William H. Greenleaf, formerly Director of the Division of Education and Publicity of the State Department of Health, has gone West to be inducted into military service.

On the joint request of the State Department of Health and the Maine Anti-Tuberculosis Association, Governor Milliken has appointed a committee on Health Centers for the State, the personnel of which is as follows: Mr. Hiram W. Ricker, So. Poland and Dr. Sylvester J. Beach of Augusta, representing the State Public Health Council; Dr. E. B. Merrill of Foxcroft and Mrs. Howard R. Ives of Portland, representing the Maine Anti-Tuberculosis Association; Mrs. George S. French of Portland representing the Maine State Sanitoria; Dr. W. E. Elwell of Portland, representing the newly created child-welfare organization; Dr. G. H. Coombs of Waldoboro and Dr. Bertrand L. Bryant of Bangor, representing the Maine Medical Society; and Mr. John Wilson of Bangor. The chief purpose of this committee will be the cooperation with the State Department of Health and the Maine Anti-Tuberculosis Association, in furthering the interests of the venereal disease and tuberculosis campaigns which will be carried on throughout the State. As a war measure, this committee is asking all hospitals throughout the State to make available the necessary space in their building, and if possible to create out-patient departments for the care and treatment of venereal diseases and tuberculosis.

Dr. J. F. Stevens of Millinocket has been ap-

pointed District Health Officer, to have charge of the Northern health district to take the place of Dr. H. E. Hitchcock, who was recently made Director of the Division of Venereal Diseases.

(*L. D. Bristol.*)

✠

Massachusetts.—An important organization was effected in Boston last month when the Massachusetts Health Committee was formed to coöperate in an educational campaign with all other agencies, which seek to make Uncle Sam's boys fit to fight, and to cut down the sickness and death-rate for the Commonwealth.

The Committee has a working fund which will enable it to carry on a vigorous campaign of lectures, exhibits, newspaper publicity, and circular work. It will serve in an advisory capacity to less experienced organizations and will try to become a clearing house for public health ideas.

The officers of the Committee are as follows:

Dr. Eugene R. Kelley, State Commissioner of Health, chairman; Miss Gertrude W. Peabody, vice-chairman of the Child Welfare Department of the Council of National Defence, treasurer; Professor Charles E. Bellatty of Boston University, director.

The director is a publicity engineer of high standing. His help and advice should be of material benefit to workers for the common health wherever publicity problems are presented. He will maintain an organization at the College of Business Administration of Boston University, 525 Boylston Street, Boston, telephone Back Bay 8810. All who feel that the committee can render service in their community should call for that service without hesitation.

Other members of the committee are Bishop William Lawrence, representing the Society of Social Hygiene; Dr. Edward Reynolds, director of the American Society for the Control of Cancer; Dr. G. M. Kline, director of the Massachusetts Commission on Mental Diseases; Dr. V. Y. Bowditch, president of the Massachusetts Anti-Tuberculosis League, and Dr. Richard M. Smith, member of the Child Conservation Committee of the State Department of Health.

Professor Melville C. Whipple, instructor in Sanitary Chemistry, at Harvard University, will very soon enter the military service.

New Hampshire.—Dr. D. E. Sullivan, of Concord, member of the State Board of Health, has been commissioned a Captain and reported for duty at Camp Upton, Long Island, N. Y., on August 15.

Dr. George C. Wilkins of Manchester, member of State Board of Health, has been commissioned a Captain and expects to leave for stay at the Rockefeller Institute after which he will be ordered to Spartanburg.

A sanitary zone has been established around the Portsmouth Navy Yard, through the joint efforts of the U. S. Public Health Service, and the health authorities of Maine and New Hampshire to be known as the Portsmouth-Kittery Civil Sanitary District.

Rules and regulations have been formulated by the New Hampshire State Board of Health for the control of venereal diseases.

Dr. Charles A. Weaver of Manchester has been appointed officer in charge of venereal disease control to work in conjunction with the state board of health and the U. S. Public Health Service.

✠

New York State.—The reinspection of all milk pasteurizing plants in the State of New York, outside of New York City is now being carried on by the New York State Department of Health, to determine if the proprietors have met the requirements of the department in the matter of equipment, operation and sanitation.

The demand for typhoid, paratyphoid vaccine has increased to such an extent that the laboratories of the New York State Department of Health have decided to distribute in addition to the present 1000 bottles of vaccine, special outfits for the immunization of one person. The concentration of pertussis vaccine has been increased from one thousand million killed bacilli to two thousand million.

Two venereal disease exhibits have been prepared and are being shown at the various county fairs in New York State during the months of August, September and October.

The June death-rate for New York State, as reported by the Vital Statistics Division was 12.0 per thousand population. This is not only the lowest June rate recorded in the history of the State, but also the lowest rate published in this State for any month in any year. The July rate carries the figure still lower—11.9.

The mortality reduction occurred quite uniformly throughout the State.

(*B. R. Rickards.*)

✱

The Annual Conference of Health Officers was held in June. Among the speakers at the conference were Governor Whitman, Commissioner Biggs, Colonel Simon Flexner, Dr. Livingston Farrand and Dr. Rufus Cole.

✱

By an Act of the Legislature, the shores of Lake George have been converted into one health district in charge of a full time health officer. Prior to the creation of the district, it was possible for one municipality to nullify to a large extent any attempt at improved sanitary conditions on the part of its neighbors.

✱

On May 22, the bacteriologists of the public health laboratories of the State met at a luncheon and renewed the New York State Association of Public Health Laboratories, formed last year. It was decided to meet each year in conjunction with the State Medical Society. (*D. G.*)

✱

Dr. George W. Goler, health officer of Rochester, N. Y., is in the Medical Corps, stationed at Camp Wadsworth, Spartanburg, S. C.

✱

Investigation of Soda Water Fountains.—The New York City Department of Health has been requested by a representative of the Surgeon General of the U. S. Army, to investigate the possibilities of soldiers being infected through the use of soda water glasses, complaint having been received relative to the spread of infectious diseases through the use of a glass at the soda water fountain.

On July 25, the attention of Commissioner Copeland of the New York City Department of Health was requested through Major Smith, to make a special investigation of the possible sources of infection of soldiers through the use of soda water glasses improperly cleaned at the various fountains. Accordingly a detail was made to investigate this condition.

From July 25 to August 1 inclusive, there were 1,412 inspections made on soda water establishments, there having been found 226 violations, the offenders being summoned to Court for violating Section 144 of the Sanitary Code which requires the cleaning or sterilizing of glasses used by the public. One hundred and fifty-three of these have been held by the Court and disposed of as follows:

116 fined—fines varying from $1 to $6; total, $175.
10 had suspended sentences.
5 were dismissed.
95 cases still to be disposed of.

As is well known, the opportunities for contracting infection through the promiscuous use of glasses at these public places are probably only casual, yet the danger to the individual when such does occur is considerable, when it is considered that in the City of New York, diphtheria and various infections that may be disseminated through discharges from the mouth, make the necessity of carefully cleaning these glasses an urgent one.

The regulation of the Department of Health is sufficiently broad to enable the dispensers of soda water to do one of several things according to their choice, but they must assure the public the possibility to use a clean glass. Those who do not, naturally violate the regulation and subject themselves to the penalty.

Attention is called to the health bulletin of the Iowa State Board of Health, December, 1911, article by Drs. Albert and Boyd, relative to the different forms of infection discovered by their laboratory—page 37. Also article by Hans Zinsser, A. M. A., June 6, 1914, page 1802.

The coöperation of the New York press was timely, and the issuing of daily bulletins very materially aided in calling the attention of soda water dispensers to the request of the Army authorities.

✱

Emergency Relief and First Aid Lecturers.—The Police Department of the City of New York, in order to anticipate any emergency that might arise through a hostile demonstration against this city, prepared a program of emergency relief, organizing committees of first aid, consisting of physicians, nurses and citizens in several districts of the city and arranged a system of training, should there be a call for the same, arrangements being made through the Fire Department to call by means of sirens—only the Fire Department of this city being allowed to use this particular whistle—the call being sounded for a ten minute interval.

In coöperation with this movement of the Police Department, the Department of Health, in league with the Municipal Civil Service Commission and other municipal departments, has established a course of lectures for the purpose of instructing municipal employees and others relative to emergency relief. The lectures are to be given by specialists in various subjects: a copy of proposed program is enclosed. The course is to be given, attendance registered, an examination held at the completion of the course, and a certificate issued.

This course of instruction on emergency relief should be very popular, particularly at this time when the services of both physicians and nurses are becoming so scarce.

1. Emergency war relief. (Introductory.)
   (a) Police, (b) Hospital, (c) Fire.
2. First aid in the home.
   (a) Danger of infection, (c) Emergent nursing, (d) Accidents.
3. Resuscitation.
   (a) Drowning, (b) Asphyxiation, (c) Relief.
4. First aid to infants.
5. First aid to the child.
6. Industrial injuries.
   (a) Frequency, (b) Prevention, (c) Aid.

These lectures will be given during the day at the noon hour in the Municipal Building and in the evening repeated in the Conference Hall of the Department of Health, preferably on Wednesday noon and Friday nights. There will be twelve lectures to the course and with a noon and evening hour, two opportunities are given to hear the same lecture.

The lectures are to be reprinted in some medical journal, reprints to be distributed or sold at a minimum cost to cover expense, and if the expense warrants it, and the course is sufficiently popular, to be made in book form and sold at a price to cover expenses.

(*S. Dana Hubbard.*)

*

The New York City papers of August 13 announced that the charges brought against Mr. Lucius P. Brown, Director of the Bureau of Foods and Drugs, have been dismissed by the Board of Health. Mr. Brown will, therefore, be reinstated.

The announcement came as good news to sanitarians and many others.

North Carolina.—The State Board of Health succeeded in convicting eleven physicians in June, for violating the Quarantine Law. It points out that the rigid enforcement of quarantine laws has two objects in view: (1) protection of people against unneccessary contagion and (2) the protection of ethical, law-abiding physicians against mercenary, law-evading physicians. (*D. G.*)

*

Ohio.—The health commissioner of Dayton won a suit, in which the plaintiff asked $5000 damages, alleging that he had been unlawfully deprived of his liberty by the enforcement of quarantine regulations at his home. The jury rendered the verdict after fifteen minutes' consideration.

The State Department of Health has recently published three admirable bulletins on sex hygiene, entitled "Some Things a Young Man Should Know About Sex and Sex Diseases," "How Any Boy Can Develop His Health and Strength," and "Instructing Your Child in the Facts of Sex." (*D. G.*)

*

Akron Health Department Flourishes.—According to the Akron *Times* of August 16, the Public Health Department of Akron under the direction of Dr. C. T. Nesbitt, will be made a major department, independent of other city jurisdiction, if voters adopt the charter outlined by the commission at the November election.

The new department, if the charter is adopted, will consist of a health commission comprising two physicians and three laymen appointed by the chief administrator. The chief health officer, or director of health, will be named by the health commission.

In order that the health department may never again suffer from dearth of funds, the charter commission provided that council must appropriate annually for health work, a sum equivalent to not less than 50 cents for each inhabitant of the city, the number of inhabitants to be determined by the school census, upon a basis of five inhabitants to each registered child of school age.

The health department is one of the first departments under the new charter to receive the final sanction of the city charter makers who are rapidly completing their work.

The new council will consist of eight members elected at large for four-year terms. The mayor is to be elected independently and after election is to become the presiding officer of council with the right to vote on all councilmanic questions. One of the prime duties of the new council will be to select the chief administrator, who will have direct charge on the management of virtually all of the city departments.

✱

Death of Dr. J. H. Landis.—On August 23, Dr. J. H. Landis, health officer of Cincinnati, passed away. The cause of death was chronic kidney trouble.

Dr. Landis was born October 10, 1860, at Millville, Ohio, the son of Dr. Abraham H. and Mary Landis. Two of his three brothers have been elected Congressmen from Indiana and the third is Judge Kenesaw Mountain Landis, Federal Judge, who became famous when he found the Standard Oil Company guilty of rebating and imposed on the company a fine of $29,240,000.

As a student of Logansport (Ind.) High School, Dr. Landis was graduated in 1897 and obtained his degree of M. D. at the old Ohio Medical College in 1890. During the next year he served as an interne in the City Hospital and then began a general practice in the office of Dr. T. C. Bradford, Race, near Ninth street.

Dr. Landis served as professor of pathology in Presbyterian and Laura Memorial College from 1892 to 1895. In 1907 he was appointed professor of hygiene in the Medical Department of the University of Cincinnati.

In 1909, when the Board of Health was taken from the control of the Director of Public Service and reorganized, Dr. Landis was named a member of the board. January 1, 1910, he was appointed Health Officer for Cincinnati, the position which he was holding at the time of his death.

Dr. Landis was not only an expert on public health but he had the rare ability to surround himself with a corps of assistants, who were imbued with his energy and enthusiasm. The public health profession will join the friends of Dr. Landis in Cincinnati and Ohio in mourning his loss.

✱

Mr. N. A. Nelson, of the Cincinnati Anti-Tuberculosis League, has been granted an indefinite leave of absence to become a member of the Commission on Tuberculosis of the American Red Cross in Italy. He will leave for Italy some time during the month of September.

✱

Wisconsin.—Dr. Gustav Windesheim, a leading practitioner, president of the Kenosha board of health, and president of the Wisconsin State Medical Society, has been chosen as health commissioner of Kenosha, Wis., and has given up his private practice to accept. He will continue as house physician at Willowbrook Sanatorium. Dr. Windesheim has been closely allied with big health movements of Kenosha and the state of Wisconsin for many years. He has already taken steps to obtain better health inspection of school children, and a new and stronger organization of school nurses.

Racine, Wis., has elected Dr. H. L. Wilson of Chicago as its physician-health officer. He has been connected with a tuberculosis sanatorium at Oak Forest, a suburb of Chicago. As a bacteriologist, he will be in a position to make laboratory tests required by an up-to-date health department.

The State Board of Health is coöperating with the city of Milwaukee in abating pollution of the Milwaukee river from industrial refuse, which has imparted a bad taste to the city's drinking water.

Whooping-cough held a strong grip on Milwaukee's juvenile population during July and August, with about 300 cases on record. Health officials have considered tagging of affected children to discourage others from contact.

The death-rate for Beloit during July was only 4.8 per thousand—far below the average, due in large measure, according to Health Commissioner W. L. Holt, to the baby clinics, visiting nurses and education of mothers in infant care through treatises issued by the health department.

Construction of Milwaukee's sewage disposal plant, involving expenditure of about $5,000,000 has been delayed until after the war. Meanwhile, all sewage will be treated with chlorine.

Practically all nurses in the employ of the Milwaukee health department have enlisted for Red Cross service. It is proposed to recall retired nurses to fill vacancies as far as possible.

The fourth biennial conference of health officers in Wisconsin drew a large enrollment

on August 7 and 8 in Madison. Public health in war-time was the predominating theme. Major J. O. Cobb, M. D., of the U. S. Public Health Service, stationed at Chicago, spoke on "Venereal Disease," and Mrs. Dorothy Reed Mendenhall of the Children's Bureau discussed "Child Welfare in Wartime." Serums and vaccines, food conservation, school health supervision, public health nursing, sanitary engineering problems, and the garbage question were among the topics of importance.

The number of deaths in Wisconsin during the second quarter of 1917 totalled 7,485, an increase of 370 over the preceding period.

The State Board of Health has published two bulletins on venereal disease, one for young men and boys, the other for public officers, parents and educators. A third will be issued for young women and girls.

The public health exhibit of the State Board of Health, improved and enlarged, is being shown at county fairs and the Wisconsin state fair. Earlier displays were at the Wisconsin conference of health officers, the convention of supervising teachers, and the meeting of the Tri-State Medical Society, all at Madison.

Wisconsin physicians and midwives are being supplied with new packages of silver nitrate to replace solutions rendered defective through freezing in transit from the eastern manufacturers last winter.

✠

Volunteer Medical Service Corps.—The Volunteer Medical Service Corps was authorized by the Council of National Defense on January 31, 1918. Under this authorization, the membership of the corps consisted of all physicians who because of overage, physical disability, dependents and essential home needs were not eligible for service in the Medical Reserve Corps of the Army or Navy.

On August 5th, the Council of National Defense authorized a change in the scope of the organization and an increase and amplification of its Central Governing Board. Membership in the Corps as now authorized, makes eligible to the Corps every legally qualified physician, including women physicians, holding the degree of Doctor of Medicine from a legally chartered medical school, without reference to age or physical disability, provided he or she is not already commissioned in the Government Service. This organization has now the approval of the President.

GENERAL PLAN.

The Volunteer Medical Service Corps is exactly what its name indicates. It is a gentleman's agreement on the part of the civilian doctors in the United States, who have not yet been honored by commissions in the Army and Navy, and a representative board of governors consisting of officials of the Government associated with lay members of the profession, in which the civilian physician agrees to offer his services to the Government if required and asked to so do by the Governing Board.

It is a method of recording all physicians who are not yet in service, and classifying them so that their services when required, will be utilized in a manner to inflict as little hardship on the individual as possible. It is a method by which every physician not in uniform will be entitled to wear an insignia which will indicate his willingness to serve his Government.

As more than sixty per cent of the physicians of the country will be utilized in caring for the industries at home and the health of the home people, this large percentage of necessity will be expected to maintain their home status and continue their ordinary professional work.

✠

Mr. Jack J. Hinman, Jr., of the State Health Laboratories at Iowa City, Iowa, has been commissioned as First Lieutenant in the Sanitary Corps and has been ordered to the Army Medical School for duty.

✠

Dr. S. Van Es, of the North Dakota Agricultural College, has removed to the Department of Animal Pathology and Hygiene, University Farm, Lincoln, Nebr.

✠

Robert N. Hoyt, of the California State Board of Health, has been commissioned a first lieutenant in the Sanitary Corps, and is stationed at Fort Oglethorpe, Georgia.

✠

Max J. Colton, Health Officer of Cumberland, Maryland, leaves that place on September 10 to accept a commission as lieutenant in the Sanitary Corps of the U. S. Army, and is to be stationed at Camp Greenleaf, Fort Oglethorpe, Georgia.

Mr. Frank S. Drown has been appointed State Registrar of Vital Statistics of Massachusetts. He was formerly expert in the U. S. Bureau of Labor Statistics.

✱

Preventing Malaria Around Camp Bowie.—When the war broke out and cantonments and camps were built all over the United States, the Public Health Service immediately realized the danger that confronted the men from malaria, who would be stationed at the camps located in malarial districts. Immediately, work was begun in most of these places to prevent the spread of malaria among the troops. The work itself did not require the introduction of new methods, but rather the application of principles already confirmed many times. The anti-malarial work is noteworthy, however, for its extensiveness. At Camp Bowie, the procedure has been not only to drain swamps by building ditches, but to straighten channels where water is flowing so as to remove the pockets which permitted the formation of quiet pools. Furthermore, grass and weeds were cut, so as to destroy the resting places of the mosquito during the day time. In addition, certain places were oiled by spraying a mixture of two parts of crude oil with one part of coal oil. When the work is completed, fifty miles of river bank will have been cleaned, and fifty miles of ditches will be dug. Wherever possible fish are permitted to aid in the anti-mosquito work. Altogether seventy-five men are employed.—W. A. Hardenbergh, *Municipal Journal*, July 20, 1918. (*M. P. H.*)

✱

Immunization Against Diphtheria.—All infants below 12, and if possible below 18, months of age should be actively immunized with three doses, each 1.0 cc., of toxin-antitoxin. These infections should be given irrespective of the Schick test the infants may show at the time of immunization. All children over 18 months of age, as well as all youths and adults, should be tested with the Schick reaction first, and only those giving a positive reaction immunized with toxin-antitoxin. Three injections, each 1.0 cc. are given subcutaneously, one week apart. In infants below 18 months of age, the Schick test is not a necessary part of the immunization, since all the infants should be actively immunized. The toxin-antitoxin mixture should be prepared in a reliable laboratory and carefully tested for potency in the guinea-pig before it is sent out for use. The mixture should be slightly toxic and should represent 85 per cent of an L to each unit of antitoxin. This immunity has been found to last, now, over three years, and in a small group whom we had the opportunity of observing, over four years. These children will be retested further at yearly intervals, to determine whether any number lose their active immunity. So far this has not been the case.—Zingher, A., *Amer. Jour. Diseases of Children*, 1918, XVI, p. 83. (*D. G.*)

✱

General Instructions for Hay-Fever Subjects.—As the fall hay-fever season will commence about August 25, the American Hay-Fever-Prevention Association, in accordance with its annual custom, issues the following instructions in the interest of public health.

In the selection of homes, hay-fever subjects should choose localities distant from weed-infested areas. The pollen of the grasses, and of the summer hay-fever weeds generally, do not ordinarily travel very far, and a mile is usually a safe distance. The pollen of the rag-weeds and other fall hay-fever weeds, however, are very buoyant, and, in windy weather, may travel 3 to 5 miles.

During their attacks of hay-fever, patients should avoid localities infested with weeds generally, and especially those to whose pollen they are sensitive.

Should their neighborhood be infested with weeds, they should report these in the interest of public health, to the Board of Health.

During the hay-fever season, patients should avoid driving or riding into suburbs abounding in weeds. An attack resulting from this increased exposure may lower their resistance and make them more susceptible to the pollens in their own neighborhood.

A reasonable amount of exercise is beneficial, but this should be taken without increased exposure to the hay-fever pollens. Swimming, especially in salt water, is an excellent form of exercise.

DIET.

The diet of hay-fever subjects during the hay-fever season should be light as regards foods rich in protein, such as meat, fish, eggs, cheese and milk. Farinaceous food may be taken in moderation. Vegetables are of benefit and fruits.

High seasoning should be especially avoided, as it frequently reacts on the membranes of the nostrils, already irritated by the pollens. Alcoholic drinks are injurious.

In cases complicated by asthma, the rules regarding diet should be especially observed, and it is preferable in these cases to have the principal meal during the middle of the day.

✱

Correction.—In the August issue of the JOURNAL on page 572, in the article entitled "The Rat and Infantile Paralysis—a Theory," by Mark W. Richardson, M. D., Chart 6 was entitled "From Belgium British Plague Commission." This should have read "From *Belgaum* British Plague Commission."

✱

Courses in Public Health Nursing.—The National Association for Public Health Nursing has compiled a list of courses available in public health nursing. This is published in the August number of the Public Health Nurse. About fifteen courses are listed in the following states: Massachusetts, Connecticut, New York, Pennsylvania, Ohio, Illinois, Missouri, Virginia, and Wisconsin. Tuition varies; it is free at the New Haven Visiting Nurse Association and ranges as high as $125 in other institutions.

A list of summer courses is also given. The Association may be addressed at 156 Fifth Avenue, New York City.

✱

Federal Social Hygiene Work.—The Social Hygiene Bulletin for July, 1918, gives details concerning the establishment of a Division of Venereal Diseases of the U. S. Public Health Service, in accordance with an appropriation of $200,000 for this purpose.

In charge of the Division is Colonel C. C. Pierce, Assistant Surgeon-General of the Service. A section for educational work and a section for medical school work are now being organized. The work of the Committee for Civilian Coöperation in Combating Venereal Diseases of the Council of National Defense has been transferred to the new Division.

In the following states arrangements have been made to place an officer of the Public Health Service in charge of the venereal disease bureau: Alabama, Arkansas, Colorado, Georgia, Indiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, New Hampshire, Ohio, Oregon, Rhode Island, South Carolina, and Virginia.

North Carolina and Kansas have medical officers of the army as directors of the work for venereal disease control.

Colonel Pierce will be remembered for his work in Panama, as well as in California during the Panama-Pacific Exposition, when he had charge of the sanitation of the Exposition grounds. Last year he directed the campaign against typhus on the Mexican border. Within this new Division, organization is proceeding as rapidly as possible.

✱

Sanitarians and the New Draft.—The newspapers in August carried an order suspending voluntary enlistment, while plans for putting into effect the proposed draft law applying to ages ranging from eighteen to forty-five were being completed.

A subsequent announcement states that physicians may still apply for commissions.

An inquiry from the JOURNAL to the Surgeon-General of the Army brings the reply dated August 21, that the order of the Secretary of War suspending further voluntary enlistment applies to all non-technical branches of the Army. The order does not affect commissions in the Medical Corps, Dental Corps, or Veterinary Corps. It does apply to enlistments in the Enlisted Force of the Medical Department.

✱

Venereal Disease Control.—The following standards for the discharge of venereal disease carriers are advocated by the United States Public Health Service. In order to be considered non-infectious as to syphilis, a patient should show by clinical examination, the absence of any area around the orifices of the respiratory, gastro-intestinal and genito-urinary tracts, from which infectious matter can be disseminated. The minimum requirements for a complete cure are (a) that after no treatment for one year, during which time there have been no symptoms, that no positive and several negative Wassermann reactions should be obtained. (b) A negative provocative Wassermann reaction. (c) A negative spinal fluid examination. (d) A complete negative physical examination, with special reference to the nervous and circulatory systems.

Before discharging cases as non-infectious as

to gonorrhea, the following requirements must be met for men. (a) Freedom from discharge. (b) Clear urine; no shreds. (c) The pus obtained from the urethra by prostatic massage must be negative for gonococci on four successive examinations at intervals of one week. (d) After dilation of the urethra by passage of a full size sound, the resulting inflammatory discharge must be negative for gonococci.

In the case of females, the requirements are (a) no urethral or vaginal discharge. (b) Two successive negative examinations for gonococci of secretions of the urethra, vagina and the cervix, with an interval of 48 hours and repeated on four successive weeks.—*Public Health Reports*, June 19, 1918. (*M. P. H.*)

✱

Occupational Treatment of Tuberculosis.—Properly regulated work is highly beneficial to the sufferer from pulmonary tuberculosis, provided that the greatest care has been exercised in the selection of the work, and that the patient coöperates willingly. Even patients who are confined to bed seem to progress more rapidly, when allowed to fill out part of the day with some interesting finger work, instead of lying still and brooding over their lot. Contrary to expectations, relapses have been less than two per cent among the patients thus treated under the writer's care, and in a year there has been only one small hemorrhage following exposure to the workshop. A fourth word should be added to the code for the treatment of pulmonary tuberculosis, which would then read, rest, fresh air, good food and work.—Beyers, T. R., *Can. M. Ass. Jour.*, 1918, VIII, p. 1. (*D. G.*)

✱

The Pennsylvania School for Social Service.—Courses in social service and in public health work for nurses are announced in the latest bulletin of the Pennsylvania School for Social Service. Of particular interest to sanitarians are courses on child welfare, recreation, public health and hygiene, rural health problems, housing and sanitation, medical social service, history and technique of anti-tuberculosis work, and principles and procedure of public health nursing. (*M. P. H.*)

✱

Illinois Tuberculosis Survey Plan.—A detailed outline for county tuberculosis surveys has been prepared by Dr. George T. Palmer and circulated by the Illinois association, of which he is president. The outline has eight divisions, as follows: I, Creating the Survey Organizations; II, Endorsement; III, Publicity; IV, Preparatory Work; V, Field Work; VI, Clinical Work; VII, Tabulation and Interpretation; VIII, Assistance in Making Surveys.

The State Department of Public Health maintains a Division of Surveys and Rural Hygiene, to which survey material may be submitted for final review before publication. Such material, so submitted, will also be passed upon by the Division of Tuberculosis, the Division of Vital Statistics and the Division of Communicable Diseases.

This outline will be a part of the county tuberculosis sanatorium campaign in each of the fifty Illinois counties, where the sanatorium proposition is to be voted on this Fall, and will be carried out by community nurses in thirty other counties during the present year. This will guarantee a simple type of survey in at least eighty of the one hundred and two counties of Illinois. In this work it is hoped to utilize the women registered with the Council of Defense for war-time service. (*D. G.*)

✱

Necessity for Conserving Child Life.—Recently, the United States Supreme Court decided by five votes against four, that the National Child Labor Act was unconstitutional. In that decision, the safeguards which had been built up around the children were swept away. It was argued that the country is experiencing a labor shortage at present and that for patriotic reasons children should be employed. Furthermore child labor is cheap, and readily obtainable. In many cases, it was argued, that the earnings of the children are necessary in order to keep the family in comfortable circumstances, even though the father may be working. Apparently it is not realized that the employment of children tends to keep wages down, and helps to make it impossible for parents to support their families on their incomes. Nevertheless the President, Secretary of War and Secretary of Navy have all urged that the laws pertaining to child labor be rigidly enforced at this time, in order to conserve the health and welfare of the men and women of tomorrow. The States are urged to give this protection to the children to the utmost.—Women's Committee—Council of National Defense, *Department of Child Welfare*. (*M. P. H.*)

BOOKS AND REPORTS REVIEWED

Alcohol: Its Action on the Human Organism. *Longmans, New York, 1918. Pp. 133. Price, 60 cents.*

This small book is authorized by a committee of nine British men of science of whom Cushny, Dale, Mott, and Sherrington are the best known in America. The eminence of the collaborators is a guarantee of the weight we may attach to their statements. This is probably the most dispassionate and conscientious treatment which the important subject has ever received, at least in a concise form. The tone maintained is cautious and conservative; the reservation of judgment respecting many questions is consistently recommended. On the other hand, explicit conclusions and the supporting evidence are offered whenever the facts warrant.

The style of the exposition is simple and popular yet there is no sacrifice of precision in the easy and colloquial writing. The depiction of the stages of drunkenness is the best since the twenty-third chapter of Proverbs. The general conclusions should satisfy all but the most impatient advocates of prohibition; very little is conceded to the opposition. It is noteworthy that in this book as in other recent literature of the matter no positive assertion is made as to a connection between the use of alcohol and early arterio-sclerosis.

Percy G. Stiles.

Sixth Annual Report of the International Association of Dairy and Milk Inspectors.

The report includes the papers read at the annual convention in Washington, D. C., held October 15–17, 1917, as well as the committee reports. The committee reports pertain to dairy farm inspection, to legislation and legal limits for the control of milk and cream, to diseases of man, methods of bacterial analysis of milk and milk products and the interpretation of results, bovine diseases, to rules and regulations necessary for securing a clean and safe milk supply, and finally to the care of milk in transportation. Very instructive papers were presented by Messrs. Ernest Kelly, Richard O. Webster, Hermann C. Lythgoe, R. A. Pearson, William H. Price, W. A. Evans, Joseph S. Neff, John J. Coughlin, Hoyes Lloyd, E. C. Schroeder, John R. Mohler and other representatives of this important field of food production. The material presented in the papers covers fully all phases of modern milk sanitation. The report forms a valuable addition to the literature and one that cannot fail to be an inspiration to sanitarians, dairy inspectors and bacteriologists. It was compiled by Ivan C. Weld, secretary-treasurer of the Association, 1120 Connecticut Avenue, Washington, D. C.

Arthur Lederer, M. D.

Standards of the Department of Health and Sanitation of the United States Shipping Board Emergency Fleet Corporation. *By Lieut.-Col. Philip S. Doane, 1918.*

The Department of Health and Sanitation of the United States Shipping Board Emergency Fleet Corporation was created with the purpose of performing the same functions toward the shipyard workers as a municipal department of health performs toward the citizens of a municipality. It was deemed highly desirable that standardized practice in the various parts of the country be obtained. It was with this in mind that this bulletin was prepared.

The desirability of frequent physical examinations is indicated. To provide proper treatment and care of employees a number of minimum requirements are outlined. Thus plants employing under one thousand men should have a first aid attendant or trained nurse for each shift and two doctors on call. In plants employing over one thousand men a resident physician should be employed. The first aid station is the unit recommended for plants employing up to one thousand men; for larger plants a dispensary is necessary. Plans for a first aid station and dispensary and the necessary equipment is outlined.

Concerning the problems of sanitation the author is cognizant of the fact that local conditions will determine the best procedure to follow

and for this reason the Department of Health and Sanitation stands ready to furnish advice upon request as to best and most economical procedure to follow.

In regard to toilets at least one seat or water closet is recommended for each twenty-five workers. Urinals should be provided in a ratio of one for each forty workers.

Standards for the general design of restaurants and lunch-rooms are indicated, as well as for the care of foods.

An appendix contains an article prepared by Dr. Edward Martin on the "Technic of the Treatment of Infections and Infected Wounds with Dichloramine-T-Chlorcosane."

David Greenberg.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hathurst, R. P. Albaugh and P. M. Holmes.

Present Status of our Knowledge of Fatigue Products.—Scott summarizes his paper as follows:

1. Substances carrying hydrogen ions, as lactic, beta-oxybutyric acids, potassium, dihydrogen phosphate and carbon dioxide, stand as causal agents of fatigue.

2. Certain products of protein disintegration, as indol, skatol and phenol may produce fatigue symptoms, and may be active agents in producing normal fatigue.

3. There is some evidence that the negative ion of lactic and beta-oxybutyric acids and that certain positive ions, especially that of potassium, are capable of producing certain fatigue phenomena.

4. There is no evidence that the negative ions of carbonic, phosphoric or sulphuric acids are fatigue substances.

5. There is no evidence at present for the existence of specific fatigue substances as proposed by Weichardt.

6. There is very little probability that certain or creatinine have any relation to fatigue or to muscle work in general.

7. There are no doubt numerous bodies, as purine bases, uric acid, etc., which may be increased by work, but which have no causal bearing on fatigue.—Ernest L. Scott, *Public Health Reports*, Reprint No. 465, U. S. P. H. Service, Washington, D. C.

✠

Women Munition Workers in France.—The fact that before the War began, French women took a large part in the business side of family life, in contradistinction to the English women, explains the rarity of discussions and reports concerning women's activities in munitions employments in France. In France private employers still control a large part of this industry, whereas in Great Britain the English Government still maintains general control and oversight of the munitions industries. It is difficult to get precise data as to the number of women employed in munition work in France, owing partly, perhaps, to their being scattered through small shops. While in 1914 there was a temporary lull in these industries, in the latter part of 1915 the demand for workers outstripped the supply, and laborers were brought in from French colonies and from foreign countries. Gradually the French Government encouraged the employment of women to take the place of men, so that by the end of the year 1916 all women readily obtainable were at work. Sweeping relaxations in regard to hours of work led to some abuses which have since been gradually corrected. Finally, in the middle of the year 1917, the Minister of Armaments issued a circular proclaiming one day of rest weekly for all women working in state munition factories, and setting the limit of a day's work at ten hours, broken by one or several periods of rest, amounting to at least one hour. Restrictions as to night work for girls under eighteen were instituted on June 29, 1916. About this same time welfare work features were extended covering housing, the care of babies whose mothers were at work, the proper care of expectant mothers, and of each mother and baby during the first year of the latter's life and the establishment of crèches and day nurseries to all hostels erected for em-

ployees. The French have not, as the British have, established training courses and factories in which women are prepared to take up skilled work. The intense production necessary has led to the installation of automatic machinery and subdivision of labor, two conditions which are usually favorable to a good production on the part of women.—Mary Conyngton, *Monthly Labor Review, U. S. B. of L. S.*, July, 1918, pp. 116–129.

⚜

Injurious Substitutes for Turpentine in the Painting Trade.—The substitution of turpentine by various substances is practised to a large extent in this country, and inasmuch as most of these hydrocarbons are productive of severe symptoms and even death when used in closed quarters, the regulations adopted in various parts of Germany, where it has been impossible to obtain turpentine for over two years, are worth noting. These have been gotten together by the *Bureau of Labor Statistics*, and published in its July, 1918, number, pp. 185–190. The principal features, as laid down for the painting of closed rooms in ships, are an effective ventilator to draw in air from the open, the relief of workmen after each half-hour's work, with permission to return to this work only after the lapse of another half-hour, the work to be done only at night or during the early morning hours in the hot season, the employment of a reliable supervisor of the workmen, the informing of workmen that certain paints and mixtures may become injurious and even cause death, and the placing of warning signs in front of freshly painted rooms prohibiting the performance of other work in them until the vapors have disappeared. Furthermore, facilities for washing should be provided and used, smoking and the drinking of alcoholic beverages prohibited, oxygen immediately administered in cases of severe poisonings, all containers should be kept tightly closed with a warning notice and male workers under 18 years of age and all female workers prohibited from working with quick-drying paints. Workmen themselves, however, must use greatest possible care to escape injury. "All paint manufactured with low-boiling-point, distilled products of petroleum, light coal tar, turpentine, carbon bisulphide, or similar substances, shall be considered as injurious to health."

⚜

The Problem of the Married Women in Industry.—Mrs. Florence Kelly's statements, upon the subject indicated in the title include the following: 1. That married women should not be considered as a unified mass of workers. When children are grown if a woman has strength and leisure, there is no good reason why she should not engage in industry. 2. That wherever mothers of young children are earning their living, or a share of their living, they are competing with their husbands and wages are always down and the death-rate of the little children mounts. 3. Under the head of sickness insurance, no special insurance provision for mothers of young children who are at work in industry should be advocated as too often advantage would be taken of this fact, and husbands send their wives into the factory for the sake of this cash bonus. Many Italians in the North and many American-born men in the southern mill villages are eager to retire at thirty to thirty-five years of age, and allow their wives and children to support them thereafter. If we are going to insure mothers, let us include the wives of all workingmen and not just mothers going into industry. The Secretary of War by a stroke of the pen has stopped sweatshop work in the manufacture of uniforms. All contractors and all production for the Government could be brought to do precisely the same thing by this administrative method.—*Bull., Penna. Dept. of Labor and Industry*, Vol. V, No. 1, pp. 55–60, Series of 1918.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

The Preservation of Typhoid and Paratyphoid Bacilli in Stools by Emulsifying in Glycerine.—The author confirms an observation of Teague and Clurman (*Jour. Inf. Dis.* 1916, p. 653), that by emulsifying infected stools in 30 per cent glycerine, B. typhosus can be kept living and can be isolated for a longer period than is possible with an emulsion made with normal saline solution. The author extended this observation and found it to hold also for B. paratyphosus A and B. When specimens of feces sent to be examined for enteric organisms are liable to be delayed in transit, it is better that they should be first emulsified in 30 per cent glycerine. This is especially the case in warm weather and in hot countries.—T. H. C. Benians, *Lancet (London)* 194, 255 (1918); *Rev. Bact.* 8, 5 (1918).

✠

The Classification of Hemolytic Streptococci.—The strains of streptococci which form the basis of this study, while limited in number to twenty-eight, can be said to represent fairly the hemolytic variety. The strains were derived from the pathological processes usually associated with infection by this variety of streptococcus. The hemolytic variety of streptococcus is homogeneous, consisting of members that are nearly identical. This homogeneity is most strikingly displayed in the behaviour of these streptococci in the complement fixation reaction, all the strains studied reacting in a nearly identical way with all the antisera.—Ralph A. Kinsella and Homer F. Swift, *Jour. Exp. Med.* 28, 169 (1918).

✠

Antiseptic Value of Some Essential Oils.—Forty-five essential oils were examined in regard to the limit dose (in parts per 1000) necessary to be added to gelatine bouillon, to prevent all microbic vegetation, even after 7 months, when the plates were inoculated with a sewage effluent containing 9 to 10 million germs per cc. The amounts required varied from 0.7 parts per 1000 in the case of thyme oil, to over 15 parts per 1000 in the case of patchouli oil, the value, under similar conditions, for phenol being 5 to 6 parts per 1000.—L. Cavel, *Compt. rend.* 166, 827 (1918); *Jour. Soc. Chem. Ind.* 37, 388 A. (1918).

✠

Cobra Venom Reaction in Diagnosis of Cancer.—Farmachidis' new series of tests sustain his previous assertions, that the activation by cobra venom of the hemolytic action of the serum in the deviation of complement test occurs only with serum from persons with malignant disease. With rabbit red corpuscles, a positive reaction was pronounced in his total of 53 out of 64 persons with carcinoma. In all the other 11 cases, the reaction occurred, but not until after the twentieth hour (between the twentieth and the thirty-fifth hours), and consequently he lists these responses as negative. In sixty-two persons with tumors of genign character, fibromas, cystomas, etc., there was no trace of a positive reaction. He now uses 0.10 cc. of a 1 per twenty thousand solution of the cobra venom, that is, one part of a 1 per five thousand solution of cobra venom in three parts physiologic saline. In his previous research, he used always the 1 per five thousand solution of the cobra venom, but found that this alone sometimes hemolyzed guinea-pig red corpuscles, and now he uses one fourth of this strength. His conclusions are all in favor of the value of the cobra venom reaction as an aid in the diagnosis of malignant disease.—C. B. Farmachidis, *Riforma Medica, Naples*, 34, 382 (1918); *Jour. Am. Med. Assoc.* 71, 320 (1918).

✠

Preparation of U. S. Army Triple Typhoid Vaccine.—This vaccine contains 5 strains of typhoid and paratyphoid bacilli. Of the former only the Rawlings strain, of the latter four; Rogers and Meers Para "A" and Cools and Rowlands Para "B." The Meers and Rowlands strains were secured from England and are the strains used in the English vaccine. The description of the preparation of typhoid and triple typhoid vaccine is given with considerable detail.—Major C. G. Snow, *Bull. Johns Hopkins Hospital*, 29, 157 (1918).

Normal Beef Serum in Treatment of Anthrax.—Two hundred cases of Anthrax were treated with ordinary beef serum without other measures, the malignant pustule and septicemia subsiding under it, even more promptly than when anti-anthrax prepared serum is used. Before this serotherapy was instituted, the mortality had been 10 per cent while with the beef serum the mortality was only 0.5 per cent in 200 cases. Similar good results have been reported from Montevieido in 18 cases, the outcome a greater success than with any other treatment known to date. The serum is injected subcutaneously in doses of 30 to 50 cc., and this is repeated in 12, 24 or 36 hours as the case may require. In very severe cases the serum can be given by the vein. The serum is sterilized by heating it twice for one half hour at 56 C. Anaphylaxis is even more exceptional with beef serum than with horse serum.—J. Penna, J. B. Cuenca and R. Kraus, *Prensa Medica, Argentina* 4, 455 (1918); *Jour. Am. Med. Assoc.* 71, 234 (1918).

✱

Potency of Antimeningococcic Serum.—A number of methods of testing antimeningococci serum have been employed but none has won general acceptance. Thus American manufacturers have been accustomed to use the complement fixation method, the agglutination method, the determination of the opsonins or bacteriotropins, or the animal protection test. Unfortunately there is no satisfactory evidence as to the correlation of the results of any of these methods of testing with the results of the therapeutic application of the serum to the disease in man. It was felt that it would be wise to accept as suitable for therapeutic purposes any serum which passed satisfactorily either by an agglutination or a complement fixation test. It was decided that the tests should be made with one or more representative organisms of American origin of each of four groups determined by agglutinin absorption methods. There have been examined at the U. S. Hygienic Laboratory since Dec. 1, 1917, 101 lots of serum. Of these, 25 failed to meet the requirements. All American serums now on the market are polyvalent serums. It has been determined that producers can obtain results comparable with those of the Hygienic Laboratory, when using the methods of testing specified by this institution. By the tests, thus far devised, it is possible only to determine definitely that the serum examined is derived from a horse, which has been immunized with strains of meningococci representative of the various serologic groups occurring in this country. All meningococci serums now offered for sale in interstate traffic are required to show this property before release from the plant of the manufacturer.—G. W. McCoy, N. E. Wayson, Hugh R. Corbitt, *Jour. Am. Med. Assoc.* 71, 246 (1918).

✱

A New Method of Preparing Gonococcus Antigen.—An antigen prepared by dissolving the gonococcus in alkali, and then rendered neutral proved to be superior to the ordinary gonococcus vaccine. The method of preparation is given in detail.—D. Thomson, *Lancet (London)* No. 4950, 42 (1918).

✱

The Loss of Complementing Power in Kept Serum.—A satisfactory method of estimating decreases in the complementing powers of sera over considerable periods of time has been devised. While kept normal, guinea-pig serum loses its complementing power more rapidly in the early stages than the later, and at 20 C. than at 9 C., yet retains its activity for a considerably longer time than has generally been conceded.—J. S. Douglas and J. W. Bigger, *Lancet (London), No.* 4950.44 (1918).

✱

Micro, and Macro-Methods of Cultivating Anærobic Organisms.—The following apparatus and methods are described:

1. Apparatus for removing oxygen from vessels containing anærobic cultures.

2. A micro-method for studying the growth of anærobic organisms.

3. Methods of growing anurobic organisms in simple test tubes.

4. Methods suitable when more than 1 test tube at a time is to be incubated.

5. Method of growing anærobic organisms on a larger scale in a single vessel.—J. Holker, *Jour. Path. and Bact.* 22, 28 (1918).

✱

Simple Method of Collectiug Blood for the Wassermann Reaction.—The method is recommended especially for neurasthenic patients.

The thumb or the lobe of the ear is pricked and specimens of blood are taken with filter paper. The size of the blood stain should be that of approximately a sixpenny piece. Each strain will contain roughly 0.08 cc. blood or 0.04 cc. serum. The number of such prepared papers sufficient for the test depends on the number of tubes to be used for each case. As a rule six is the maximum. No further treatment is required beyond allowing the papers to dry over night or in the incubator for a shorter period. For use they are folded and either before or after the other reagents have been added, one, representing one dose, is dropped into each tube, which must finally contain sufficient fluid to completely cover the paper. The tubes are shaken or inverted. Further steps are the same as when fluid serum is used. The films should be used within a week of collection.—Chung Yik Wang, *Jour. Path. and Bact.* 22, 28 (1918).

✻

New and Simple Ultra-Filters.—Ultra-filters of simple construction for the filtration of colloidal solutions are described. It has been found that an efficient apparatus may be obtained by the use of either an ordinary or a Buchner funnel, and filter paper which has been treated in situ with a 2 per cent collodion solution. The results obtained by subjecting a number of colloidal solutions of different kinds to ultra-filtration are described.—W. Ostwald, *Kolloid Ztsch.* 22, 72 (1918); *Jour. Chem. Soc. (British)* 113, 192 (1918).

✻

Method for Staining the Diphtheria Bacillus.—The following method of staining has given very satisfactory results:

STAIN I.

Gentian violet (sat. alcoh. sol.)	10 cc.
Acetic acid sol. 4½ per cent	90 cc.

STAIN II.

Bismark brown	0.480 mg.
Distilled water	125 cc.

The body of the bacillus becomes a delicate shade of purple or brown, and the clubbed ends and polar bodies, dark purple or black.—Foster A. Beck, *Jour. Am. Med. Assoc.* 71, 109 (1918).

✻

Examination of Sputum for Albumin in Tuberculosis and Bronchitis.—Altogether 580 tests were made. To 5 cc. of sputum, add 20 cc. of normal saline and 5 or 6 drops of acetic acid. Shake thoroughly and filter. Test the filtrate by boiling or with nitric acid for albumin. In 57 cases of chronic bronchitis the albumin test was invariably negative. In 73 cases of suspected tuberculosis without definite signs, about 87 per cent gave a positive reaction, and probably 60 per cent of these showed organisms within 2 or 3 months. In 71 cases of clinical tuberculosis 79 per cent showed albumin, if the sputum was taken during an elevation of temperature, but albumin was nearly always absent from sputum when the temperature and pulse were normal or subnormal. Choose a febrile period for taking the sputum, as albumin will be present then if ever.—B. S. Cornell, *Bull. Canadian Army Med. Corps*, 1, 45 (1918); *Jour. Am. Med. Assoc.* 71, 408 (1918).

✻

"Hormone" Medium as a Substitute for Serum Medium.—The investigations of many workers have long been directed toward the production of media that would answer the growth requirements of delicate organisms without the necessity of employing serum fluids. The part played by the so-called vitamins or hormones in the artificial media in the reproduction of bacteria has been made a deep study in the last few years. For agar the following method was finally developed.

Chopped beef heart or steak	500 gm.
Water	1000 gm.
Peptone (Bacto)	10 gm.
Agar (Bacto)	16 gm.
Salt	5 gm.
Whole Egg	1 gm.

The product prepared has a growth value 10 times as great as standard agar and is at least as good as the average grade serum agar. Directions are also given for the preparation of Hormone Gelatin Broth and Semisolid Agar.—F. M. Huntoon, *Jour. Inf. Dis.* 23, 169 (1918).

✻

The Influence of Incubation on the Wassermann Reaction.—Complement binding is better in the incubator at a temperature of 37 C. than in the open water bath at the same temperature. It takes place gradually, many hours being required for its completion. It proceeds much better at a temperature of 10 C. than at 37 C. or 21 C.—E. H. Ruediger, *Jour. Inf. Dis.* 23, 173 (1918).

Method of Isolating B. Botulinus.—The authors succeeded in establishing the diagnosis in seven cases, by the isolation of B. botulinus from materials that were collected for examination. The culture media employed were glucose-infusion agar, glucose-infusion broth and sheep's brain medium. Immediately before the media are inoculated, they should be boiled for at least twenty minutes. After boiling they should be cooled at once. The odor of B. botulinus cultures is quite characteristic, somewhat like rancid butter or certain kinds of cheese. The glucose broth cultures are allowed to incubate for about one month before they are disturbed. A portion of the broth is then passed through a diatomaceous filter and 1 cc. is injected subcutaneously into a guinea-pig. The organism could always have been obtained in pure culture from the broth in which a virulent toxin had developed.—E. C. Dickson and G. E. Burke, *Jour. Am. Med. Assoc.* 71, 518 (1918).

Intrarectal Administration of Arsphenamin.—The intrarectal administration of arsphenamin has been found to be a successful method of treating syphilis and relapsing fever. The untoward effects are practically eliminated by slower absorption. The method requires no special skill in administration, and can be intrusted to a nurse or to the patient himself. The dosage can be increased by this route and given as often as every three days. It is the method of choice in nervous subjects, in obese or very anæmic women, and in children. It is believed that it offers the same curative value as the intravenous route.—A. S. Boyd and M. Joseph, *Jour. Am. Med. Assoc.* 71, 521 (1918).

Comparison of Wassermann and Bruck Reactions.—The Bruck serochemical reaction for syphilis (serum and nitric acid) is unreliable as a test to supplant the Wassermann reaction in the tuberculosis sanatorium. As far as could be noted from the above observations it gives no data of value.—Corper, H. J. and Fiala, L.—*Amer. Rev. of Tuberculosis*, 1918, II, p. 290. (*D. G.*)

Tuberculosis and the Wassermann Reaction.—As a result of the routine, serological blood examination of the 1,395 men and 1,399 women residents of the City of Chicago Municipal Tuberculosis Sanatorium, a definite positive Wassermann reaction was obtained in 7.2 per cent of the men and 5.8 per cent of the women.—Corper, H. J., *Amer. Rev. of Tuberculosis*, 1918, II, p. 290. (*D. G.*)

Medium for the Influenza Bacillus.—Quantities of 0.25 c. cm. of Allen and Hanburys trypsin compound are added to tubes containing 4.75 c. cm. of sterile broth. The mixture is then incubated for 24 hours and any contaminated tubes discarded. One c. cm. of blood from a venipuncture is then introduced into each tube, and the mixture of trypsin-blood broth is incubated for three or four days. The product is then ready for use and is mixed with agar, as if making ordinary blood agar, in the proportion of 5 c. cm. of trypsin-blood mixture to about 30 c. cm. of agar. The trypsinized blood can be used in larger proportions than indicated, with advantage, if large quantities of emulsion be required. The agar used is preferably Douglas's trypagar and should be faintly but definitely alkaline to litmus paper. The medium grows influenza freely from the first culture and it is to a marked extent selective. (*D. G.*)

Medium for Cultivation of Meningococcus.—To fluid nutrient agar cooled to 50° C. add 3 per cent of sterile laked-blood mixture prepared by following procedure:

A wide mouthed sterile bottle with volume graduation marks has added to it 10 g. of sodium citrate dissolved in 10 c. cm. of water and is taken to slaughter house. When a sheep is being slaughtered, the blood after the first gush is received into bottle usually up to 1 litre mark; during process bottle is vigorously shaken. On arrival at laboratory 1.25 c. cm. of formalin are added to litre of blood and thorough admixture ensured. The blood then transferred with aseptic precautions to a ground glass stoppered bottle and 30 c. cm. of methylated either are added to one litre of blood. Stopper firmly inserted and bottle shaken; then left overnight in incubator at 37° C. When required 3 c. cm. of mixture are added by pipette to fluid agar at temperature of about 50° C. It is convenient to have agar stored in flasks of 100 to 200 c. cm.—Darling G. and Wilson, W. J., *Lancet*, 1918, CXCV, p. 105. (*D. G.*)